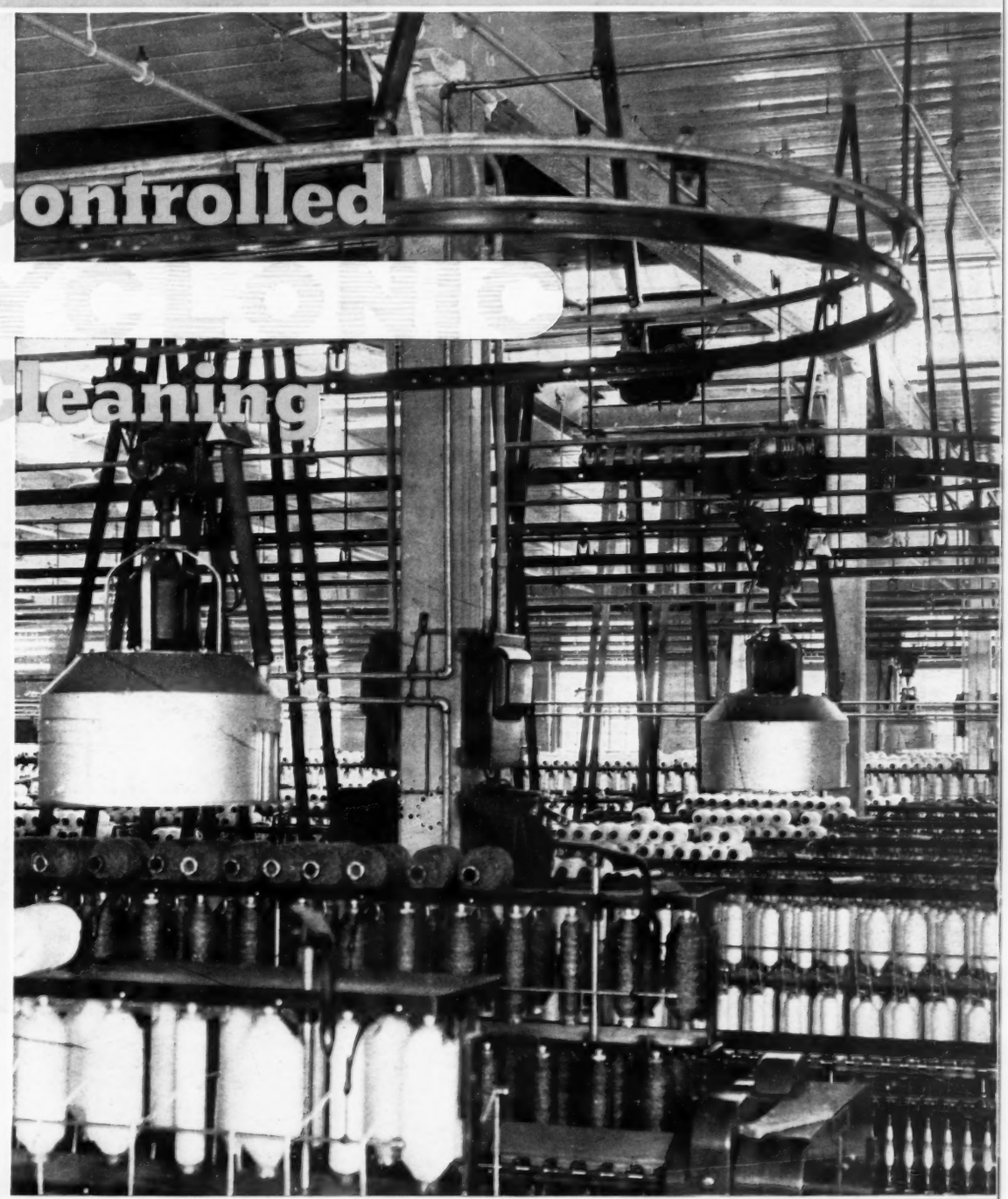
COTTON

JULY, SERVING THE 1938

Textile Industries



Repeated field tests under actual operating conditions prove that more lint is removed when a swirling action is set up in air currents from automatic cleaners.

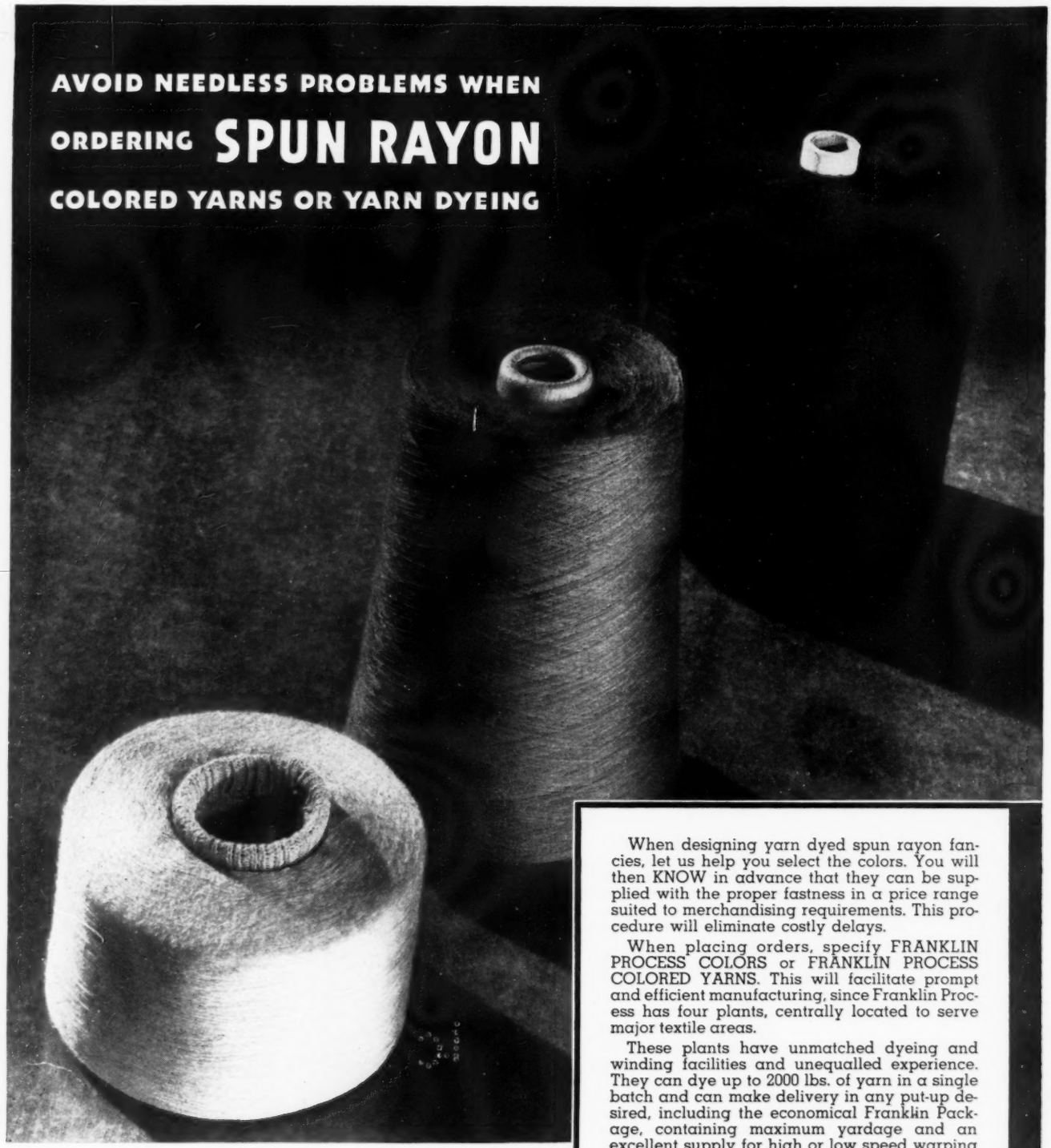
This cyclonic action must be accurately controlled and carefully directed so that while roving is protected against damage, sufficient velocity reaches the lower bobbins and under the roll stand to prevent accumulation of fly.

With these features the American MonoRail system eliminates cleaning problems over spinners, twisters, and warpers.

A new book explaining further advantages will be sent on request. Write to American MonoRail Co., 3106 Athens Ave., Cleveland, Ohio.

AMERICAN MONORAIL *Automatic* OVERHEAD CLEANERS

for Spinning, Winding, Twisting and Warping



When designing yarn dyed spun rayon fancies, let us help you select the colors. You will then KNOW in advance that they can be supplied with the proper fastness in a price range suited to merchandising requirements. This procedure will eliminate costly delays.

When placing orders, specify FRANKLIN PROCESS COLORS or FRANKLIN PROCESS COLORED YARNS. This will facilitate prompt and efficient manufacturing, since Franklin Process has four plants, centrally located to serve major textile areas.

These plants have unmatched dyeing and winding facilities and unequalled experience. They can dye up to 2000 lbs. of yarn in a single batch and can make delivery in any put-up desired, including the economical Franklin Package, containing maximum yardage and an excellent supply for high or low speed warping or for a No. 90 Universal Winder.

Write or phone our nearest plant or office and ask our representative to call.

SPECIALISTS IN PACKAGE DYEING SINCE 1910

Franklin Process

Natural Yarns • Colored Yarns • Glazed Yarns
Dyeing and Processing Machines

PROVIDENCE • PHILADELPHIA • GREENVILLE
CHATTANOOGA

NEW YORK REPRESENTATIVE • 40 Worth Street
CHICAGO REPRESENTATIVE • 100 W. Monroe Street

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Entered as second-class matter at the Post Office, Dalton, Ga., under the Act of Congress of March 3, 1879.

TS1550
C8

Is Breakage of Filling Disturbing Your Production or Reducing Looms per Weaver?

The Number of Looms
Your Weaver Can Run
Is Set by Loom Stops

With Feeler Looms
Every Filling Break
Adds to the Stops

We Have Bobbins and Shuttles and Shuttle Frictions That Will Help You

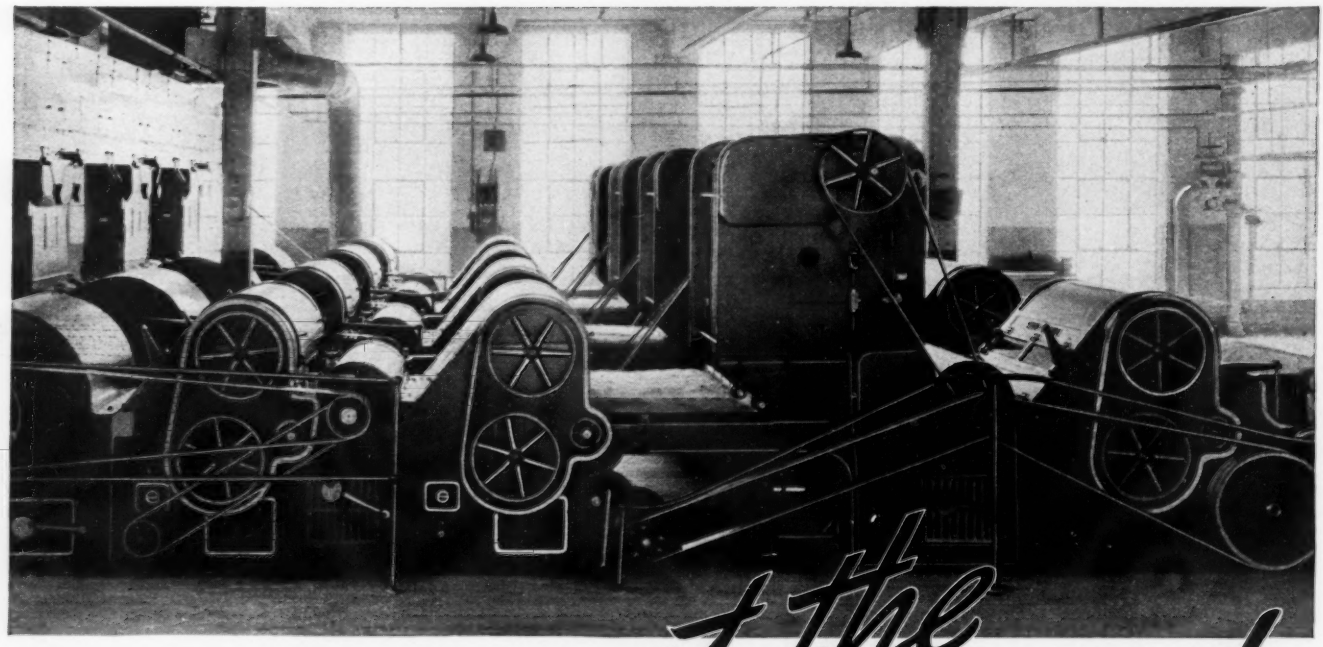
Filling Breaks Are Expensive ❖ They Increase Weaving Defects ❖ They Lessen Production and Increase the Seconds ❖ ❖ If You Are Weaving Fine Fabrics with a Feeler They Reduce the Number of Looms per Weaver

Talk it over with a Draper Man ❖ We Have Suggestions That May Help You

DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C

COTTON CONDITIONING



The Texspray System sprays the stock as it enters the beater chamber of the picker. Here the cotton is clean—free from dirt, trash, leaves.

..at the pickers!

SEND FOR THIS FREE BOOKLET. 16 pages, illustrated, describing cotton conditioning, its development, and advantages. Interesting and helpful to the cotton man who wants to improve working conditions and the quality of his yarn.

TEXACO

YOU WILL MAKE A SUCCESS of cotton conditioning in your mill, when the stock is sprayed at the beater chamber of the pickers.

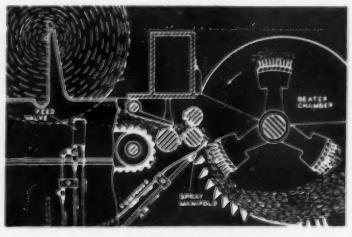
This is an exclusive feature of the Texaco Texspray System.

Texaco Texspray gives you a smoother, better-looking product. Each batch of cotton contains a higher percentage of long fibres; fibres are more flexible, easier to draft.

The Texspray System makes healthier working conditions because it greatly reduces fly and dust.

The Texaco Texspray System is available in cotton manufacturing centers throughout the United States.

The Texas Company, 135 E. 42nd Street, New York City.



Note that the compound is applied just where the fibres spread out, fanwise, so that each fibre can be thoroughly sprayed.

TEXACO TEXSPRAY SYSTEM

OF COTTON CONDITIONING

You *Now* can Produce Better Cloth at Lower Costs --

With DODGE Loom Drives and DODGE Loom Bearings

IN the new Dodge Loom Drive and Capillary Oiling Loom Bearing is found a combination of advantages which manifest themselves in — a better cloth, increased production at lower operating costs.

The Dodge Drive smooths out loom operation —it has reserve power to meet peak requirements . . . The Bearing embodies the capillary oiling principle which is positive and unfailing—it greatly reduces maintenance expense.

Let us send you Dodge Bulletin A-236 which describes these units.

DODGE MANUFACTURING CORPORATION
MISHAWAKA, INDIANA, U.S.A.

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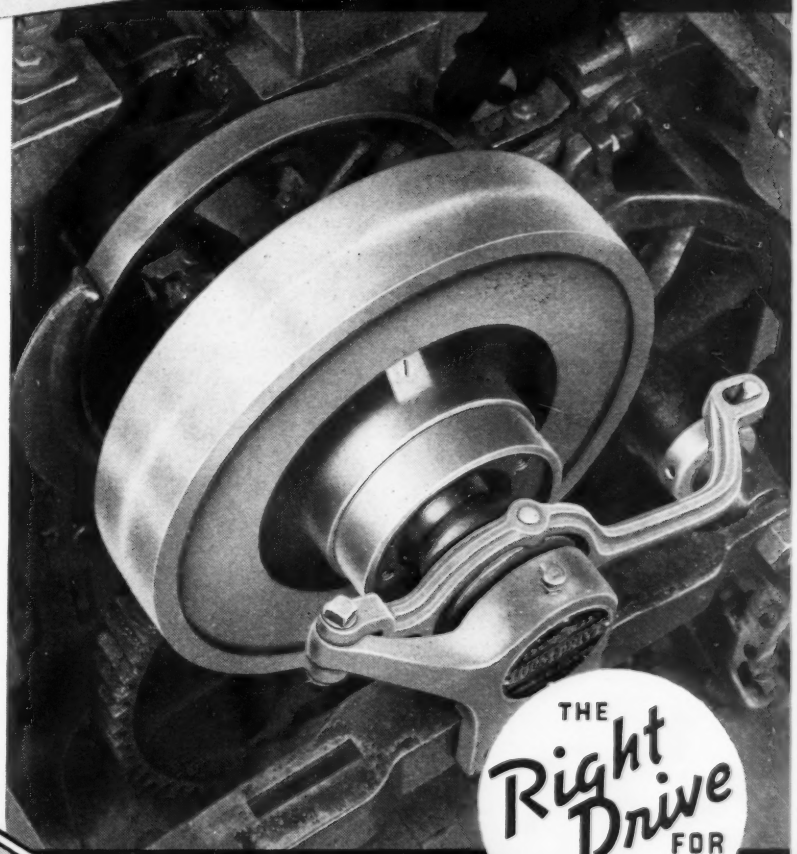

THE *Right Drive* FOR EVERY JOB

DODGE
MISHAWAKA

THERE IS ADDED VALUE IN THE NAME DODGE

NEW VAT COLOR DEVELOPER

made by du Pont

CUTS OUT SOAPING OPERATION

SAVES TIME

SAVES MONEY

NOW . . . with Du Pont's remarkable new double-action developer, "Ondal" A . . . you can eliminate the final soaping and rinsing operation entirely. For "Ondal" A is both an oxidizing agent *and a detergent.*

"Ondal" A is easier to apply than most other developers, too. It's a stable, uniform compound which releases its oxygen at the same rate every time. "Ondal" A has a bleaching action which is strong enough to *improve* poorly bleached or partly bleached gray goods . . . producing brighter, cleaner shades in the finished fabric.

With all these remarkable features, it's easy to see why "Ondal" A will give you better, quicker, and cheaper developments than any other compound.

Try this new developer. And enjoy more profitable processing than ever before. Here's the first step to take: Write, right now, for complete details on "Ondal" A. They will be sent promptly and gladly. E. I. du Pont de Nemours & Company, Inc., Fine Chemicals Division, Wilmington, Delaware.

"ONDAL" A

DU PONT

REG. U. S. PAT. OFF.

The Southern textile industry and Standard Oil have grown up together ...STANDARD OIL LUBRICANTS were the *first* lubricants *specifically designed* for textile machinery, and today, after more than half a century, they are still the *first choice* ...The fact that STANDARD OIL LUBRICANTS lead in popularity after long years of exhaustive tests, is *proof* of their ability to do a safe, dependable lubrication job, at lower cost.

STANDARD OIL COMPANY

INCORPORATED IN KENTUCKY

REPEAT ORDERS

...TELL THE STORY!

NOTHING tells the story of the success of the new Union Special LOCKSTITCH any better than the steadily growing stream of repeat orders from manufacturers who have tried it and now know what this machine can do ..... Join these users and we believe you too will quickly discover why it is to your advantage to come back for more!
UNION SPECIAL MACHINE COMPANY,
438 N. FRANKLIN STREET, CHICAGO, ILL.

EULAN

THE PERMANENT MOTHPROOFING AGENT

Give your fabrics permanent protection against the ravages of moths—with EULAN—and win the gratitude and sales approval of thousands of modern shoppers.

GDC

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET, NEW YORK, N. Y.

PONSOL*

Golden Orange YL double paste

PATENT APPLIED FOR

is the latest Du Pont anthraquinone vat dye possessing superior fastness to light and excellent fastness to laundering.

It yields yellowish shades of orange which change only slightly in tone when given the usual soaping finish. It reduces readily in alkaline hydrosulfite vats and also levels, penetrates and exhausts well. This product is applied in the same manner as other hot dyeing vat colors.

PONSOL GOLDEN ORANGE YL DOUBLE PASTE is recommended for dyeing all classes of cotton and rayon fabrics where the maximum resistance to light and laundering is desired. It may be applied in all types of dyeing apparatus and is particularly recommended for pigment pad work.

DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & CO., INC.

Organic Chemicals Department

DYESTUFFS DIVISION

Wilmington, Delaware, U. S. A.

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Unified Fibre Control

Examine under a microscope a section of sliver processed on the new SACO-LOWELL Controlled Draft Drawing Frame. Repeat your examination on the strand of roving . . . and again at the spinning bobbin. At each step you will find the fibres long, unbroken, evenly drawn, uniformly distributed, and arranged in an orderly manner with all fibres in parallel order. **This is the result of UNIFIED FIBRE CONTROL.**

Yarn formation with UNIFIED FIBRE CONTROL is accomplished in less time . . . and with less equipment. Ordinarily only 3 operations are required from drawing sliver to spinning bobbin, and not five. This means other economies—such as savings in power, maintenance, and operating costs.

But this is only part of the story. UNIFIED FIBRE CONTROL is not only a short cut to better yarn, but to increased profits as well. Our engineers are ready to give you complete details. Write today.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON, MASS.

Charlotte, N. C. . . . . Greenville, S. C. . . . . Atlanta, Ga.

"No More Hose Troubles"

Premature hose wear creates unnecessary high cost, interrupts operations and impairs workmen's efficiency. Mechanical rubber hose should give long service in spite of hard usage and ordinary abuse that are a natural result of proper application.

Republic Hose for conducting air, water, steam, gasoline, oil, chemicals, gases, etc. for suction or high pressure applications can be relied upon to give full value in length of service. Wherever premature hose wear has been experienced, Republic Hose will put a stop to this source of expense.

Workmen in every branch of American industry know from experience that Republic Hose is dependable. They look to it as the best means of ending their hose troubles.

REPUBLIC RUBBER

Division OF LEE RUBBER AND TIRE CORPORATION

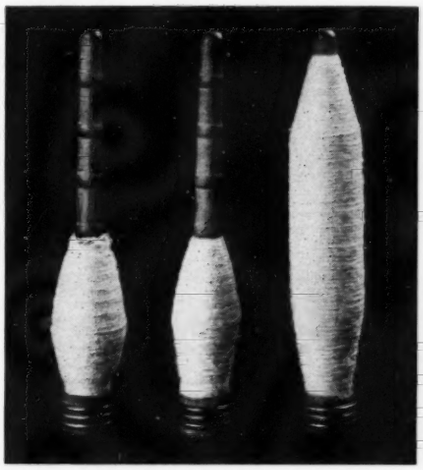
YOUNGSTOWN, OHIO

Manufacturers of HOSE
BELTING • PACKING
MOLDED PRODUCTS

ORDER REPUBLIC RUBBER PRODUCTS FROM YOUR DISTRIBUTOR

GETTING THE MOST FROM WINDING

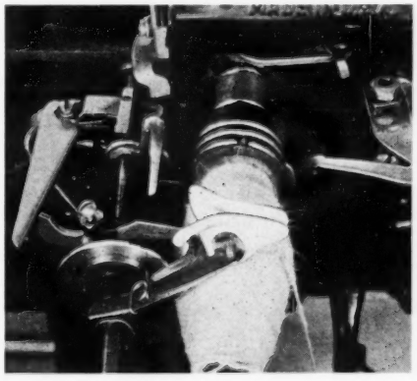
Information about winding designed to show improvements in winding equipment and new ideas in the winding operation



PROPER SETTING OF COP FORMER (No. 90 Winder)

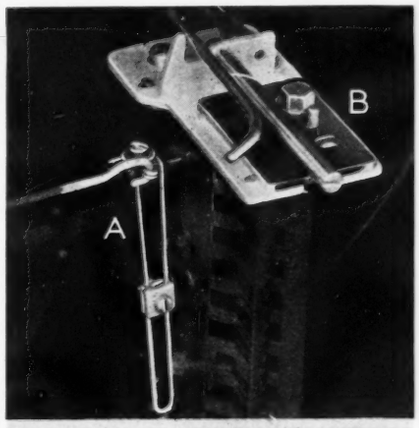
The illustration shows a comparison of two partly-wound bobbins of woolen yarn, the one on the left having a soft nose, the one in the middle having the proper build. The completely-wound bobbin on the right shows clearly that the taper at both ends should be the same for perfection.

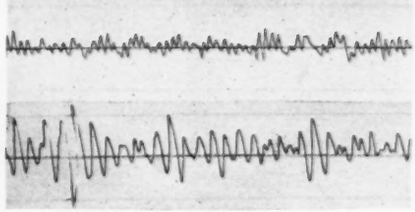
This trouble at the nose is caused by improper positioning of the cop former as shown below; proper care in positioning the cop former in order to build the same length of taper at both ends, will eliminate the trouble. For silk and rayon, the cop former must also be set this way to avoid soft noses or irregular shapes.



ANTIWEAR TENSION CONTROL and PRECISION CLEANER (No. 50 Winder)

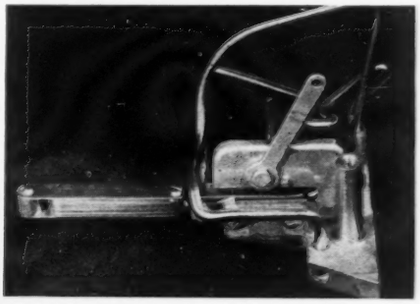
The Antiwear Tension Control has been developed for mills winding silk or rayon. Installed (A) between the tension lever connecting rod and the movable half of the Antiwear Tension, it absorbs vibration caused by plucks when winding over the heads of spools or from other causes. The adjustment is moved down for winding fine deniers with light tension or up for heavier deniers with more tension. The chart shows the reason for the improvement in winding which has been noted by mills which have installed this device.





Recorded tensometer reading for silk with and without Antiwear Tension Control

The new Precision Cleaner (B) offers the advantage of speed of setting — together with accuracy. A single movement of the special wrench loosens the locking screw and lifts the movable blade. With the thickness gauge inserted, the blade is released, and a spring fixes it in position. Continuing to turn the wrench locks the setting, which is uniform with the other spindles. No "feeling" is necessary — only one screw to loosen and lock — and the blades themselves are not taken apart. (Patent applied for.)



The Precision Slub Catcher for the Roto-Coner operates with the same principle as the Precision Cleaner for the No. 50 Winder

CAM ROLLS for LEESONA WINDERS

All our cam rolls are made by precision methods out of the best of steel and using a new development for high surface hardening. Let's look at the results: The new Universal processed cam rolls taken out of mills operating on 2 shifts for 10 months showed less than .002″ wear; cam rolls made by the then standard methods showed more than .015″ wear.

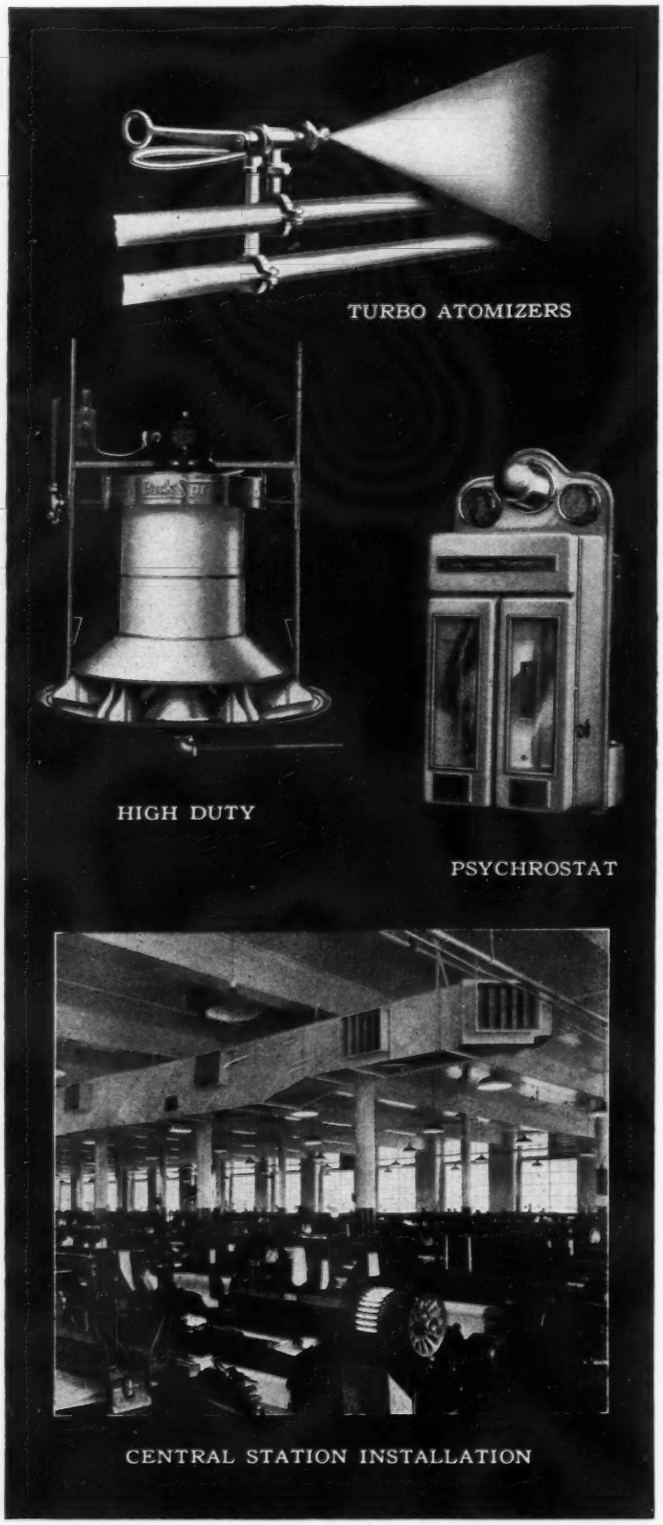
The reason for our taking pains with a part that seems relatively unimportant is the fact that a poorly made cam roll will wear out faster and may damage the cam that costs many times more than the cam roll.

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

NO HUMIDIFIER HAS EVERYTHING



but . . . every humidifier has something

That is why we make a complete line. That is why we make every practical type of humidifier unit. Atomizers, no bigger than a Gillette. Central Stations as big as a penthouse.

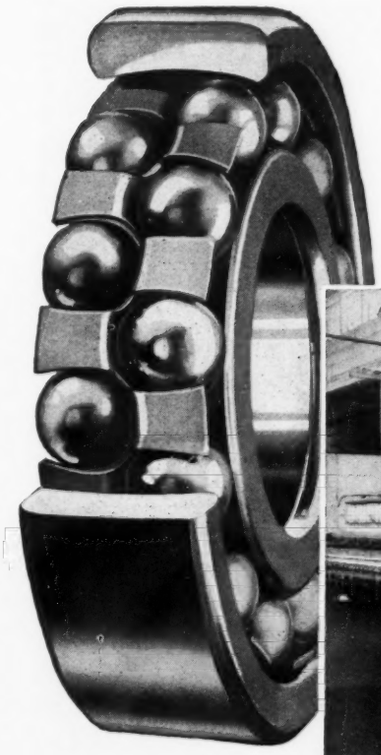
They are carefully designed . . . and made.

Determined by long experience, units are selected, systems are laid out and installed for just one purpose: TO DO YOUR JOB IN THE BEST AND MOST ECONOMICAL WAY.

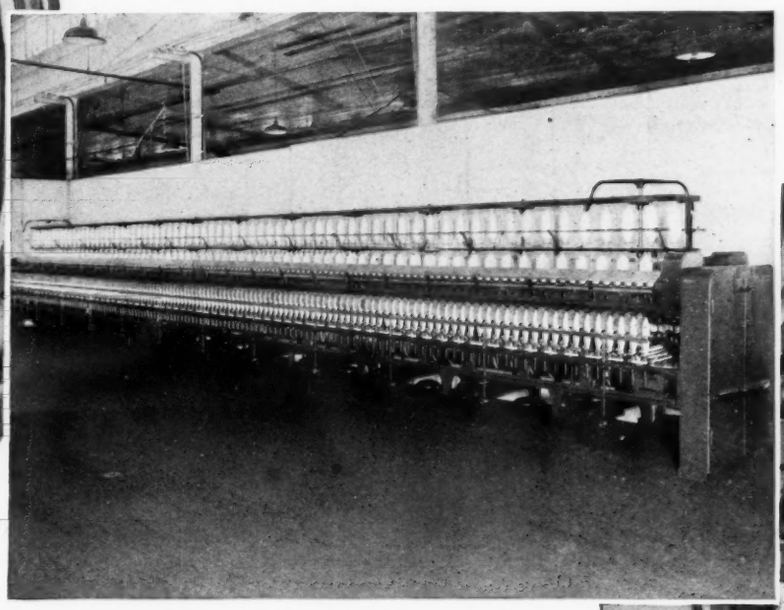
There is a right humidifying unit, a right layout, a right kind of automatic regulation best suited to your needs. Get these and you get everything your Air Conditioning investment can bring.

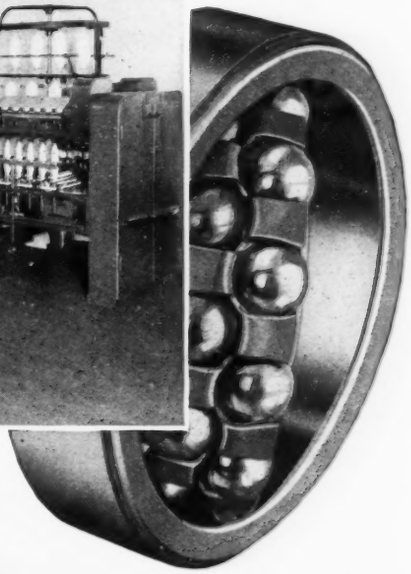
PARKS *Certified* **CLIMATE**

PARKS-CRAMER CO • FITCHBURG, MASS. • CHARLOTTE, N. C.



BUILT BY WHITIN MACHINE WORKS SKF-EQUIPPED





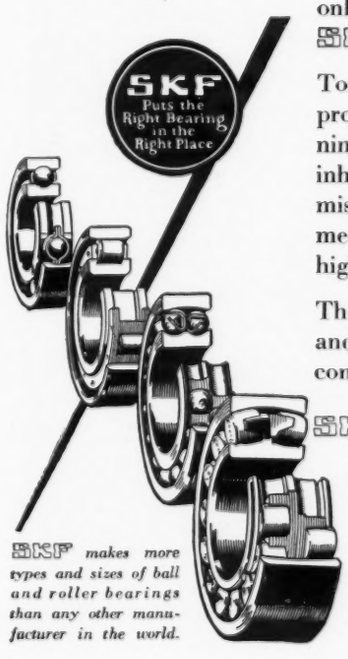
WHITIN SPINNING FRAMES

ARE SKF-EQUIPPED ON DRUM CYLINDERS

When you buy or specify this Model F-2 Spinning Frame, you not only get one of the latest designs in this type of equipment, but SKF Bearings on drum cylinders as well.

To textile mill superintendents, this means bearings that have proved satisfactory under practically all conditions found in spinning frame operation . . . that minimize maintenance with their inherent ability to compensate easily for those small but costly misalignments caused by warping frames and settling floors. It means dependable, long-lasting bearings that assure cleanliness . . . high production . . . low running costs.

This frame also comes equipped with SKF Roller Bearing Spindles and SKF Tape Tension Pulleys on specification. With a bearing combination like that, you can't go wrong.



SKF makes more types and sizes of ball and roller bearings than any other manufacturer in the world.

SKF INDUSTRIES, INC., PHILADELPHIA, PENNA.

4130

SKF

BALL & ROLLER BEARINGS

TRADE-MARK

Established 1862

THE LUNKENHEIMER CO.

"QUALITY"

Valves

Lubricating Devices

Boiler Mountings

CINCINNATI

NEW YORK • CHICAGO • BOSTON • PHILADELPHIA

28-65-10

Fishing is good business

• Forget the mill once in a while—and go fishing! There's nothing better to refresh a man and send him back to his job with new vim and vigor.

Stein-Hall starches, dextrines and gums help make it possible for you to respond to that urge to "get away from it all". They let you forget about your sizing, printing and finishing problems. In fact, when it comes to giving relaxation and peace of mind, they're almost as good as a fishing trip all by themselves.

So go fishing if you like. You'll have a better time knowing that Stein-Hall products will be working smoothly and efficiently while you are away.

P.S.—If you aren't yet using Stein-Hall starches, dextrines or gums, wouldn't it be a good idea to become better acquainted now?

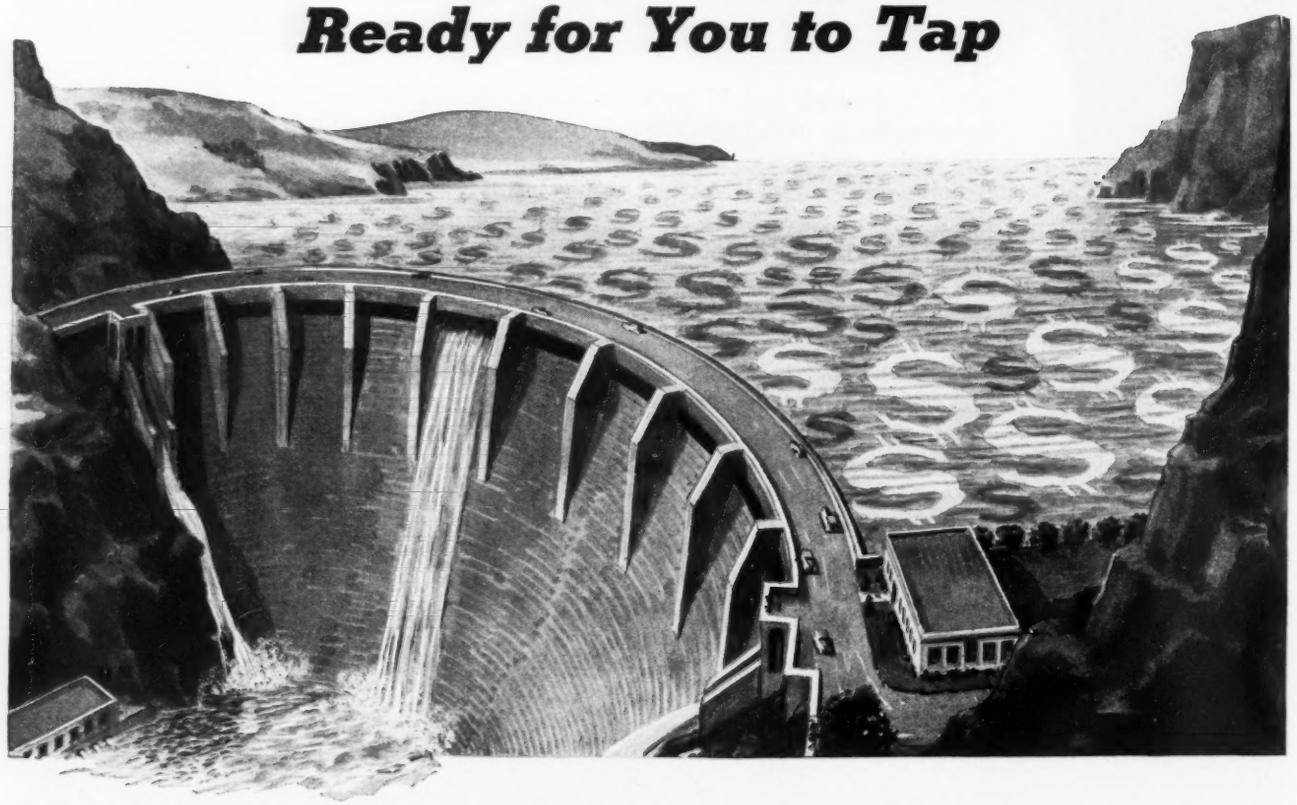
STEIN, HALL & COMPANY, INC.
285 Madison Avenue, New York

STARCHES, DEXTRINES AND GUMS FOR

SIZING · PRINTING · FINISHING

A RESERVOIR OF CASH

Ready for You to Tap



Obtain funds as needed at low financing cost . . . Limited Loss Clause reduces Credit risk.

YOUR accounts receivable represent a substantial reservoir of cash which you can utilize at any time to your profit.

You need not contract to sell *all* your receivables. You may discount them with us to whatever extent your requirements dictate. You will have no maturing obligations to anticipate . . . no periodic liquidation. You will be using your own money, at a cost comparable to, and often less than the customary cost of borrowing.

The advantages of this modern flexible type of financing are now augmented by our LIMITED LOSS clause. This enables you to use the dollars temporarily frozen in 30 to 90 day accounts without notification to your customers. They get their customary terms and pay you as usual. You protect yourself from any credit losses beyond a small agreed percentage.

Progressive, highly rated concerns are using our open account financing to keep their capital constantly liquid and at work. You will find it a simple method of getting immediate cash to discount your bills, meet tax payments and payrolls, purchase needed materials at lower prices, to speed up distribution of inventory and generally strengthen your position.

COMMERCIAL CREDIT COMPANY

Capital and Surplus Over $64,000,000

BALTIMORE

NEW YORK CHICAGO PORTLAND, ORE. SAN FRANCISCO

"Capital at Work"

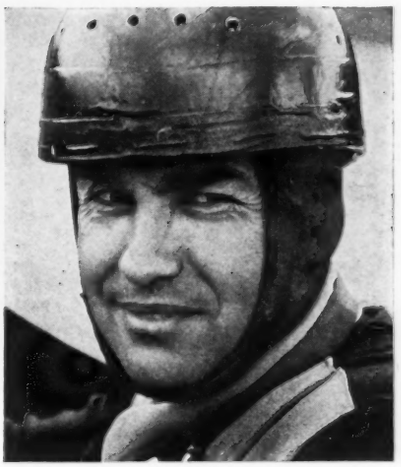
This new booklet may show you a simple solution to an apparently difficult financing problem. We will mail it to you, or will have one of our officers call. State on letterhead which you prefer.

GULF WINS

1ST, 2ND, 3RD AT INDIANAPOLIS!

Winner Floyd Roberts averaged 117.2 M.P.H. in the 500-mile classic.

Wilbur Shaw averaged 115.5 M.P.H. to finish second.



Chet Miller averaged 114.9 M.P.H. to finish third.

Record-breaking drivers use GULFPRIDE OIL!

All three winners of the Indianapolis Memorial Day Race used—not special racing castor oils—but regular, stock Gulfpride . . . certified by the AAA Contest Board to be the identical oil sold by Good Gulf dealers everywhere!

Here's what the winners say about Gulfpride:

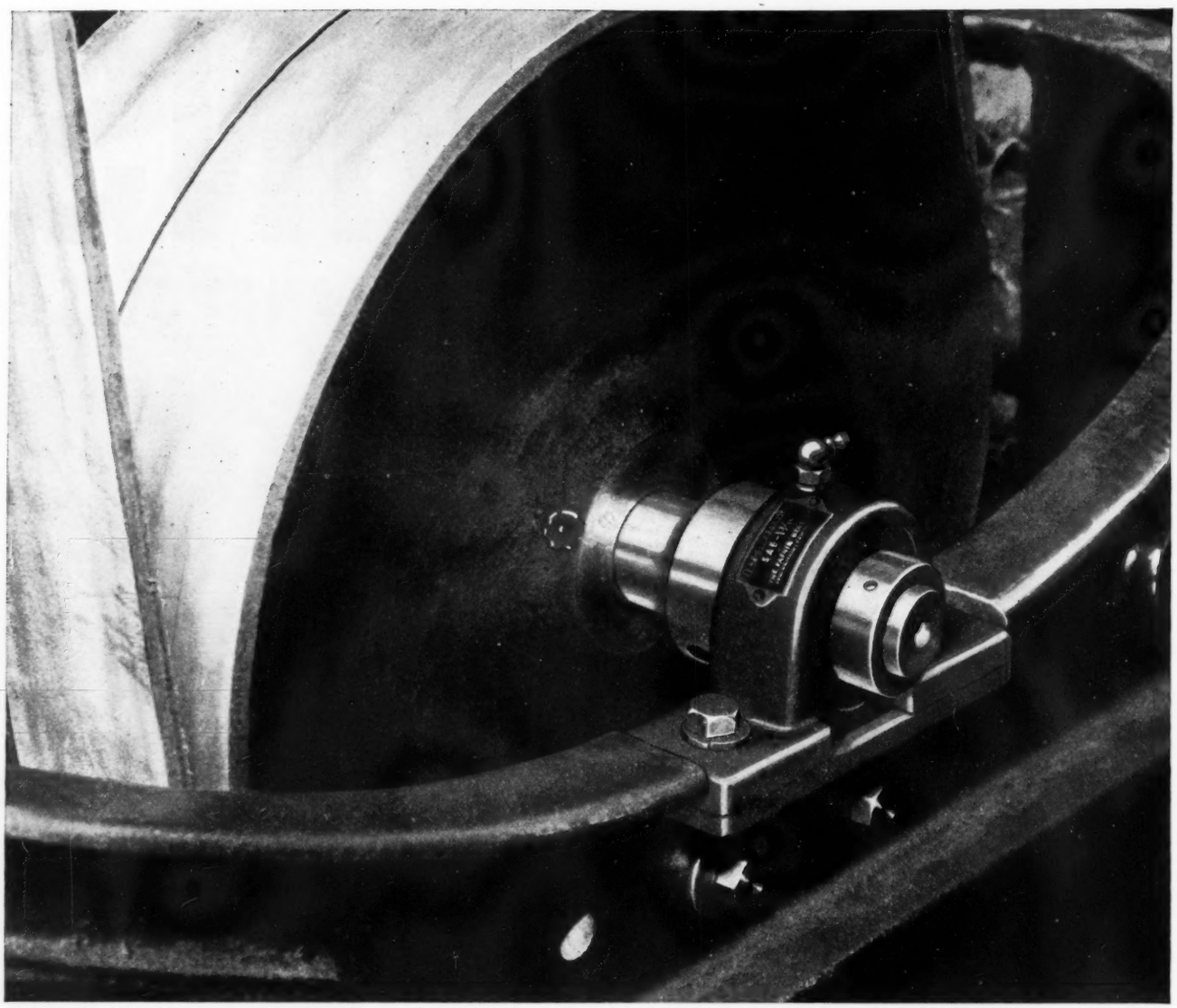
"Perfect lubrication provided by Gulfpride Oil played an important part in helping us win first, second, and third places in the 500-mile Memorial Day Race here at Indianapolis. Unfaltering performance of our engines throughout the gruelling race enabled us to attain faster average speeds than ever before had been achieved at this speedway."

{Signed} Roberts, Shaw, Miller

These three all-time record-smashing performances testify to Gulfpride's ability to stand up under punishment. That's why Roberts, Shaw, Miller and many other prominent racing drivers choose Gulfpride over even special racing oils. The reason is that Gulfpride is the world's only 100% Pure Pennsylvania oil refined by the Alchlor process, *in addition to* conventional methods.

This same refining process is used in the preparation of Gulf's finest industrial lubricants. Thus, operators of steam turbines, air compressors, Diesel engines and many other types of industrial equipment can secure for their engines and machines the same protection against friction, wear and repair expense that Roberts, Shaw and Miller received from Gulfpride Oil when they made three all-time records . . . Gulf Oil Corp., Gulf Refining Company, Gulf Bldg., Pittsburgh, Pa.

GULF INDUSTRIAL LUBRICATION



There's always a way to mount a Fafnir...

Hundreds of mounting problems have been *pre-solved* for users of Fafnir Ball Bearing Textile Units . . . one ingenious housing design after another is made to fit into place with a minimum of time and trouble * * For Fafnir engineers know that the unequalled advantages of Fafnir Wide Inner Ring Ball Bearings mean nothing to the user unless the bearings can be readily applied * * To supplement the scores of specialized units developed for textile equipment, Fafnir engineering is always ready to step in with the solution to application problems . . . *For example*, this angle-iron mounting, which solved the change-over problem from plain to ball bearings on a spinning frame where space did not permit the conventional installation * * Use the Fafnir Textile Catalog (No. 9) as your guide to ball bearing units easiest of all to install or remove, and rely on Fafnir engineers to solve the problems of special applications. The Fafnir Bearing Company, New Britain, Conn. Branch Offices: Atlanta • Birmingham • Boston • Charlotte • Dallas • Houston • Memphis.

FAFNIR BALL BEARINGS

THE BALANCED LINE • MOST COMPLETE IN AMERICA

AFTER TWO YEARS...

The Ultra Sanforizer is Ready!

DURING the first few years of sanforizing, we led *all* manufacturers combined in the making of sanforizing equipment. However, we recognized a couple of years ago the need for changes and improvements in sanforizing equipment—and we started to work then to perfect this machinery.

Frankly, during these two years, while our draughting room and experimental shop were working overtime, we made very little effort to sell our sanforizing equipment, for we wanted our customers to have the very latest—the very best that our efforts could produce.

Now we are ready with the Ultra Sanforizer. Among others it has these features:

1. **Greater capacity on all weights of fabric. One of our experimental units has consistently led its field in royalties paid on goods of comparable weight.**
2. **Highly improved range drive and shrinking control units. Heretofore only approached on a few machines built by a foreign licensee.**
3. **Vastly improved atomizers and vapor chamber.**
4. **And of course, the very latest in anti-friction bearings and modern design together with other major and minor improvements.**

All improvements have been approved by Cluett-Peabody.

Production has already started on the first of these new sanforizers. You will want to know all about them, so write us and we will tell you promptly all about the greatest sanforizer ever built—the Ultra.

H. W. BUTTERWORTH & SONS CO., PHILADELPHIA, PA.

Established 1820

PLANTS at PHILADELPHIA and BETHAYRES, PA.

New England Office:
TURK'S HEAD BUILDING
Providence, R. I.

Southern Office:
JOHNSTON BUILDING
Charlotte, N. C.

In Canada:
W. J. WESTAWAY CO.
Hamilton, Ontario

BUTTERWORTH...

A Complete Line of Textile Finishing & Rayon Machinery

Aldrich Synchronized Single Process Pickers

POSITIVELY DO MAKE EVENER LAPS

On every comparative test ever reported to us, Aldrich Synchronized single process pickers have made laps producing evener card sliver than laps from other pickers.

Cotton mills all over the United States have replaced other types of single process equipment with Aldrich Synchronizers and have never failed to improve the evenness of their card sliver.

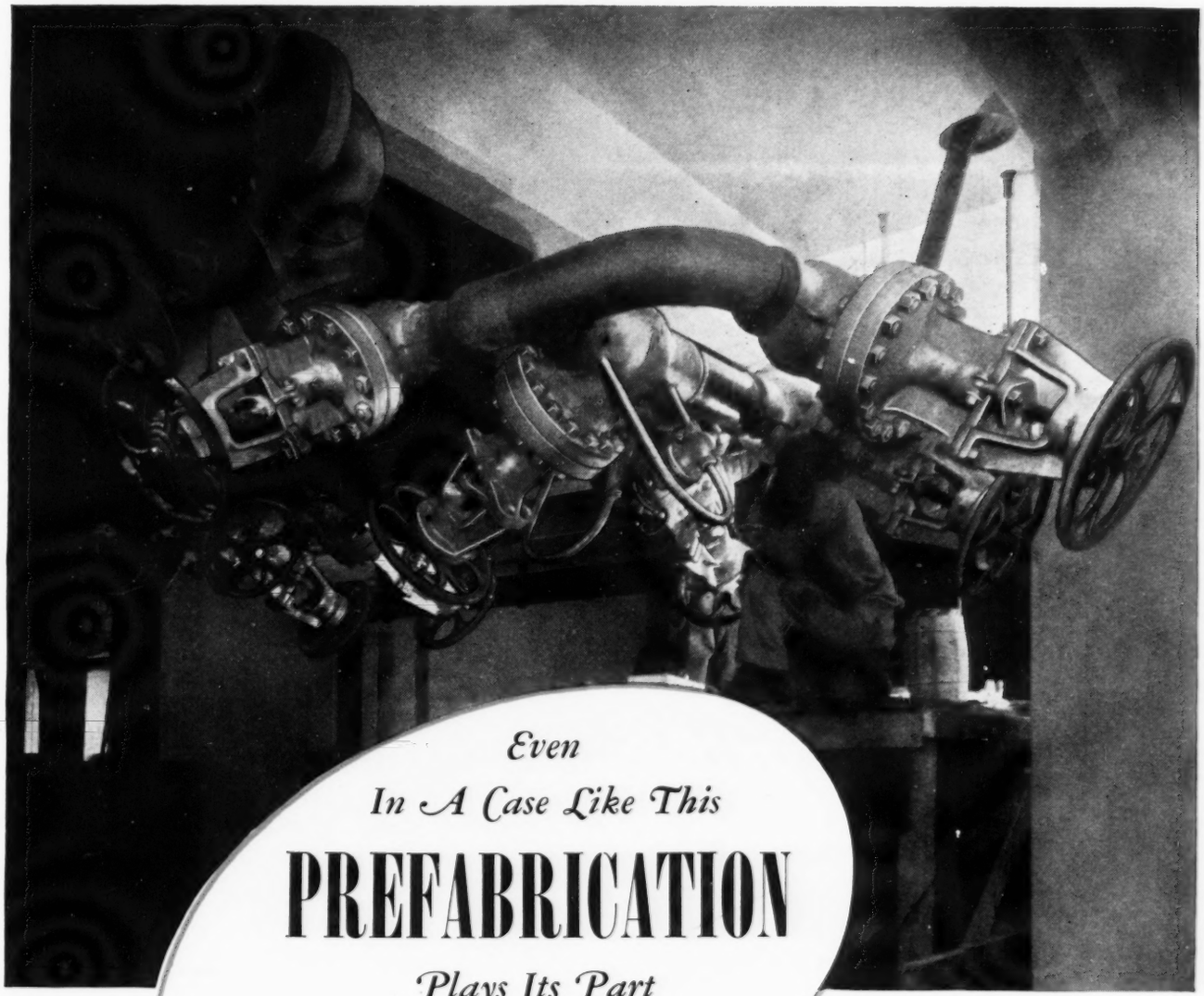
Such results are no accident. They are due to the fundamentally correct Aldrich principle of *Synchronizing* all sections of the picker so that each contributes to the progressive evening of the lap as it passes through the machine.

Aldrich Synchronized single process picking is the ideal equipment for mills with long draft roving or spinning where the best possible laps are needed.

Made and installed by

AldricH MachinE WorkS

Greenwood, South Carolina



Even

In A Case Like This

PREFABRICATION

Plays Its Part

The compactness that locates this group of big gate valves close together can be provided in only one way . . . by carefully engineered, prefabricated sub-assemblies, welded into a finished unit.

Back of this complicated piping installation lie engineers' ideas and plans, interpreted by Grinnell . . . . plant facilities that provided the sub-assemblies to accurate dimensions, in the proper material, on Grinnell's unfailing schedule . . . . welders whose work qualifies for insurance . . . . all reasons why engineers faced with routine or unusual piping jobs are saying, "Give the plans to Grinnell." Grinnell Co., Inc., Executive Offices, Providence, R. I. Branch offices in principal cities of the United States and Canada.

SEND FOR THE PICTURE-STORY

"Grinnell Prefabricated Piping" — scores of photographs of Grinnell prefabrication facilities and power and process installations.

PREFABRICATION BY GRINNELL

WHENEVER PIPING IS INVOLVED

There's a man outside promising 2% more production

HE'S from Graton & Knight. He says he's not selling leather belting . . . but bonuses of increased production.

The idea is, he says, that his Research Belting delivers more of the power it receives than ordinary belting, so it increases average machine production — produces more units in the same length of time. But it doesn't cost you anything for what you get extra.

He uses a handkerchief to show why his Research Belting delivers more power. First he yanks it from diagonal corners and it stretches way out. Then he pulls it from opposite points on the sides . . . and the handkerchief doesn't stretch at all.

Well, that's practically what happens with his Research Belting. Some new manufacturing processes they've got in Graton & Knight's Home of Research have increased transmission capacity — got rid of wasteful stretch — so that Research Belting delivers full power to production machines.

The pay-off is that the new Research Belting is guaranteed to increase our average machine production over ordinary belting at least 1 or 2% . . . or they refund the purchase price.

So shall I send him in?

GUARANTEE: *Research Belting, installed on your drives, will increase average machine production at least 1 or 2% over ordinary belting or the purchase price will be returned. Why not call today to get Research Belting on one of your important drives where increased production can be measured?*

See Graton & Knight insert in the belting section of Thomas' Register for sales offices and distributors.

MODERN GROUP DRIVE

Graton and Knight

RESEARCH BELTING

from the Home of Research, Worcester, Mass.

WRITE FOR OUR HANDBOOK ON LEATHER BELTING AND POWER TRANSMISSION

"I said, 'Mr. Wilkins, tomorrow is my thirty-fifth birthday. Do you realize that some of our looms are older than I am?'

"Well, at first he didn't seem to think that thirty-five years was so old. But, when I told him that in my lifetime I had seen the development of the telephone, the automobile, the radio and so on, he began to realize how much technical progress has been made since those looms were bought.

"I went on to tell him of all the loom improvements I saw at the last textile show—the higher speeds, the flexibility, better cloth, etc. Finally he stopped me and thought he had put an end to my argument by saying, 'I know, Austin, the things you say are true. But looms cost money. To completely re-equip our plant right now is entirely out of the question.'

"That was final until I told him about C & K's modernization plan—you know, about replacing the worst 10% first because that will give the greatest benefit? Well, that kind of made sense to him.

"Anyway, when it wound up he had put up to me the responsibility of finding out which of our looms to replace first."

Dear Mr. Austin:

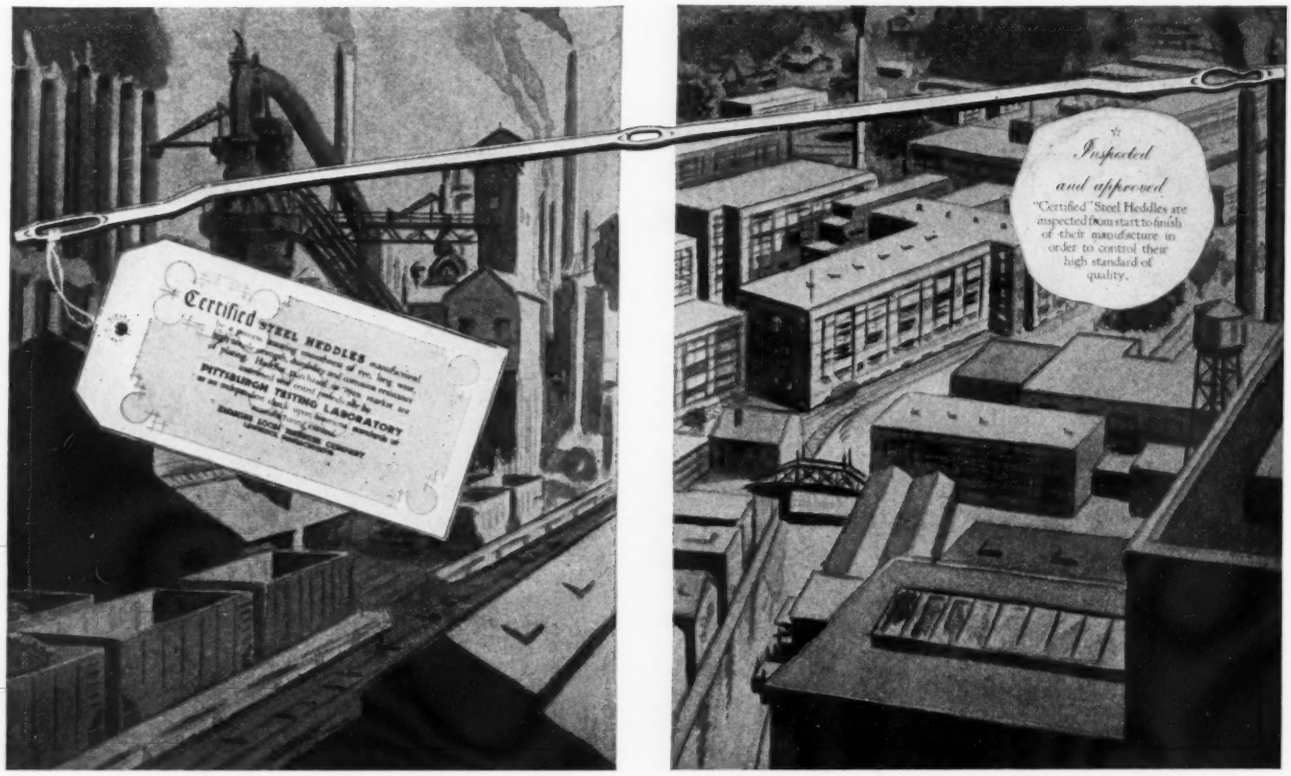
Congratulations on your new job. If we can help you in ferreting out the worst 10% of your looms, please let us know.

Very truly yours,
CROMPTON & KNOWLES LOOM WORKS

CROMPTON & KNOWLES LOOM WORKS

ALLENTOWN, PA. PHILADELPHIA, PA. CHARLOTTE, N. C. **WORCESTER** CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

THIS HEDDLE HAS 2 GUARDIANS


Certified
STEEL HEDDLES
PITTSBURGH TESTING LABORATORY
Inspected
and approved
"Certified" Steel Heddles are inspected from start to finish of their manufacture in order to control their high standard of quality.

ONE IN *Pittsburgh* - - - ONE IN *Lawrence*

—just to make sure it will give you the kind of weaving life you want

Pittsburgh Testing Laboratory has been directed to buy Emmons "Certified" Steel Heddles — *in the open market* — and to put them through their own tests for all the points that contribute to a longer heddle life and better weaving. They check up on us and send in their impartial reports. That's one way we control the quality of "Certified" Heddles — for you.

In addition to that, Emmons has an *inside* inspection over every operation from start to finish of manufacture. No shipment leaves our plant without the Inspected & Approved seal . . . evidence of our own maintenance of a high manufacturing standard. And no shipment leaves without the "Certified" tag for the Pittsburgh Laboratory Tests.

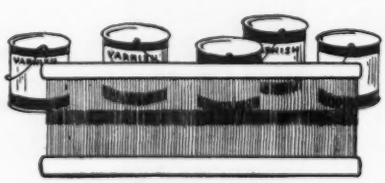
This is Emmons' way of playing square with the industry. No unbacked-up quality claims. No inferior materials. No haphazard manufacturing methods. Emmons builds heddles for trouble-free weaving . . . and spends money to be certain you'll get it. We invite you to wire or phone your order to us now — collect. Emmons Loom Harness Company, Lawrence, Massachusetts.

Emmons

"CERTIFIED" STEEL HEDDLES

EMMONS CHAFELESS CORD COTTON HARNESS

Emmons picks the best and longest staple cotton for greater strength, longer life.



5 coats of specially prepared varnish make Chafeless Cord humidity proof.

A 48-hour baking process makes the harness super-smooth. Less fly. Better cloth.

ALL EMMONS PRODUCTS ARE LISTED IN TEXTILE WORLD YEARBOOK

IT BUILDS FOR BETTER WEAVING ON THIS SOLID FOUNDATION

1. IT MAKES BETTER WARPS
(a.) Less Shedding (b.) No Foaming

2. IT COSTS LESS TO USE
(a.) Highly concentrated (Less required)
(b.) Lower Transportation Costs
(c.) No Waste (Clean Floors, Pipes and Kettles)

3. IT'S EASIER TO HANDLE
(a.) Dry Form (b.) Convenient Packages

★ A new synthetic warp sizing in DRY [illegible] COTTON warps. TRIAL LOT ON REQUEST

Arnold-Hoffman & Company, Inc.

AHCO PRODUCTS

Established 1815 . . . Plant at Dighton, Mass.

PROVIDENCE, R. I.

AHCO PRODUCTS

NEW YORK BOSTON PHILADELPHIA CHARLOTTE

You're Always "Face to Face" with Facts with *mono-therm* INDICATING THERMOMETERS

Instantly and easily readable, from a wide angle and from as much as 20 feet away, FOXBORO *mono-therm* Dial-Type Thermometers don't require "closeups" for accurate temperature measurement. Because they may be located as far as 200 feet from the bulb, it is never necessary to take readings in obstructed, awkward or poorly illuminated surroundings.

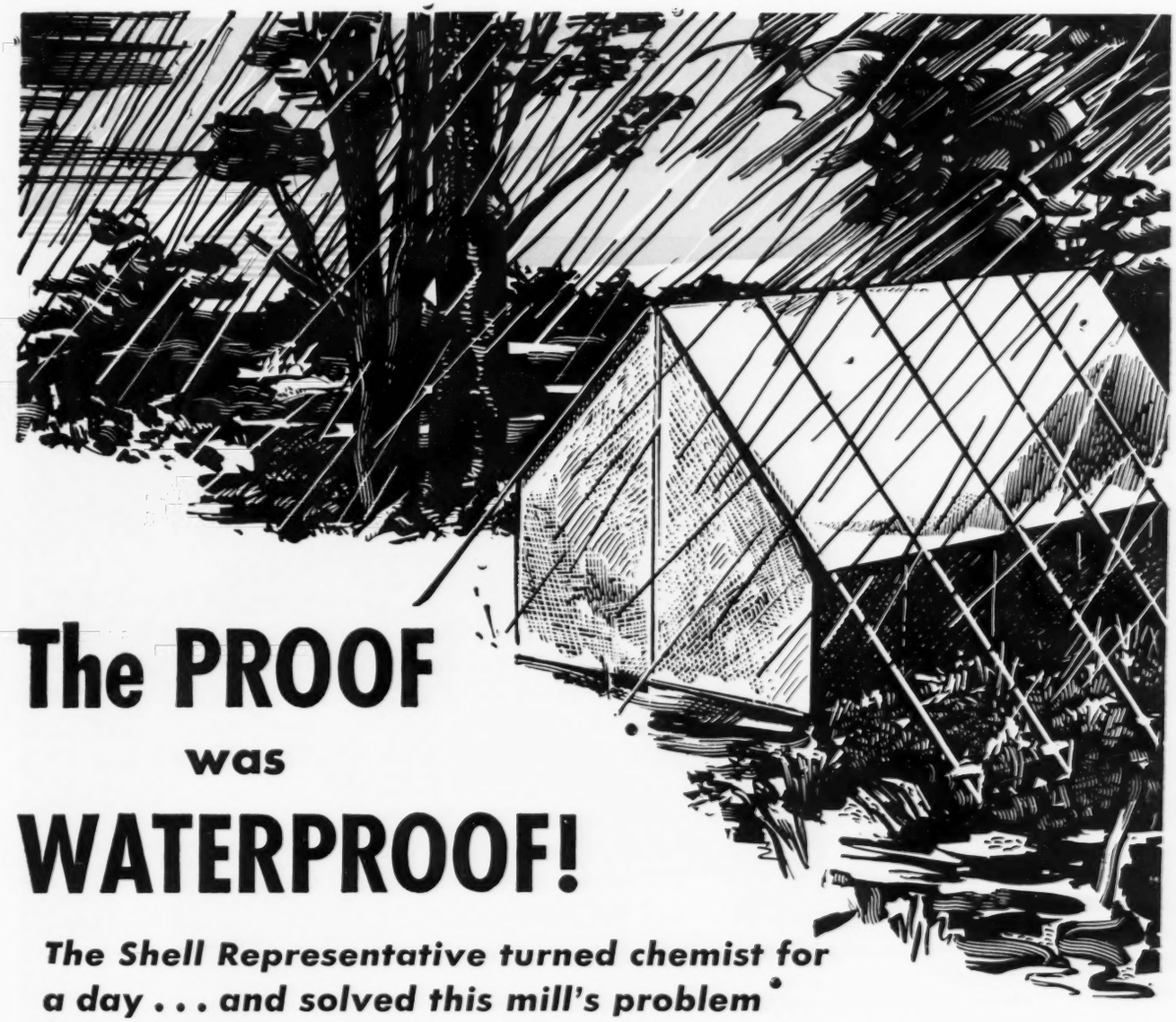
And you can always rely on *mono-therm* readings. They're *right!* Each instrument is individually certified for accuracy and response—not just at one midway check-point but over the entire length of scale. From bulb to calibrated spring the thermal measuring system is an integral unit. The inherent high accuracy is designed to withstand hard usage over long periods.

Years of FOXBORO experience make FOXBORO Instruments the logical "buy"—in accuracy, readability, speed and long-lasting ruggedness of construction. Don't accept a second-choice indicator . . . specify FOXBORO and be *sure!* The Foxboro Company, 18 Neponset Avenue, Foxboro, Mass., U. S. A. . . . Branch Offices in 25 Principal Cities. Atlanta office: 101 Marietta St. Building.

FOXBORO

REG. U. S. PAT. OFF.

mono-therm INDICATING THERMOMETERS



The PROOF was WATERPROOF!

The Shell Representative turned chemist for a day . . . and solved this mill's problem

POWERS AND COMPANY are nationally known manufacturers of tents, awnings, tarpaulins, etc., with plants located in Chicago and Philadelphia.

User of a variety of Shell products, this company was well acquainted with the skill and efficiency of Shell engineers. When trouble developed in the waterproofing plant—the Shell engineer was called on to help solve it.

This plant was experiencing trouble with spotty coverage of waterproofing compound and too hard a finish. The Shell engineer worked on the waterproofing compound formula and discovered that by using a special grade of Shell's Petrolatum, together with a suitable grade of paraffin oil, it was possible to get good coverage and a soft, pliable finish.

As a result of the correction of this waterproofing fault, this plant was able to step up production and consistently turn out a fine finished product.

For years Shell engineers have served the Textile Industry in many ways. Case history No. 2379 from the Shell files is one more example of how Shell men, working with Shell products, can lick *your* particular problem—no matter how large or small. The next time a lubricating problem comes up—call or write your nearest Shell office.

SHELL *TEXTILE* LUBRICANTS

SHELL

Good Seeing is Good Business

...WITH MODERN COOPER HEWITT LAMPS

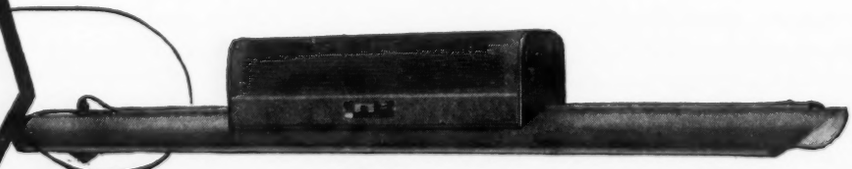
Human eyes are industry's most critical control devices . . . For this reason, if for no other, their well-being is *always* good business. Economizing on lighting is similar to economizing on lubricant for machines.

Good lighting conquers visual strain, it makes work safer, makes surroundings cheerier, and ends the nervous tension that comes from eye fatigue. Employees *see* better, *think* better, *feel* better and *work* better when lighting is engineered to the job. It's one efficiency item that everybody welcomes . . . At the end of a shift in the well-lighted plant, employees leave their work clear-eyed, visually fit for hours of recreation and home life.

Now, too, with the new Cooper Hewitt* Lamps "high seeability" lighting is less expensive than ever before. Plants where costs are known down to the last penny are installing Cooper Hewitts right now—as a means of spreading slim modernization budgets wisely as well as widely throughout the plant.

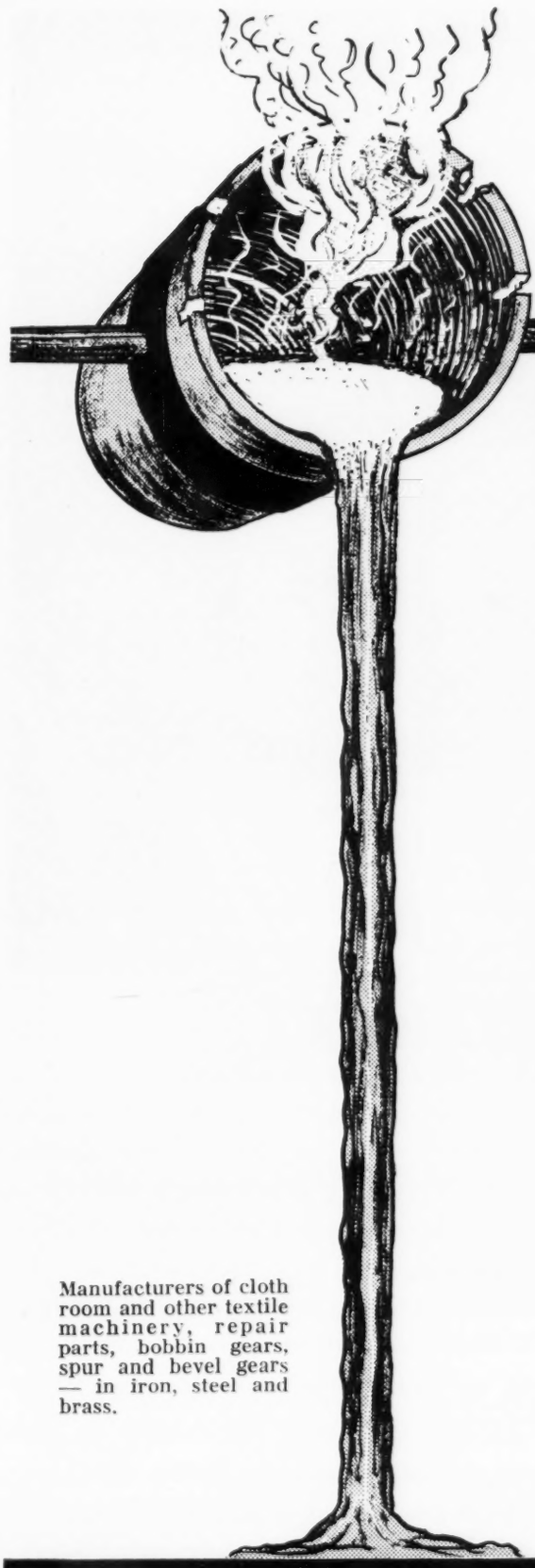
Why not discuss the possibilities of similar gains in your own plant with a representative who knows the economics as well as the engineering of modern industrial lighting? General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

*The new Cooper Hewitt starts instantly . . . hangs horizontally . . . gives the same output from 22% less wattage than previous types. It provides a soft, detail-revealing light for non-fatiguing seeing.



GENERAL ELECTRIC VAPOR LAMP COMPANY

909C



MOULDING AND MACHINING

—*for Textile Mills*

Our foundry and machine shops are equipped to fabricate many types of textile machinery—either in whole or in part. Skilled labor, working under the supervision of a highly trained technical staff, produce repair parts with the same care that is given to new machinery.

For Exclusive Use

Many textile mills use the services of our technical staff, working in conjunction with theirs, for the development of special machinery for their exclusive use.

Manufacturers of cloth room and other textile machinery, repair parts, bobbin gears, spur and bevel gears — in iron, steel and brass.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

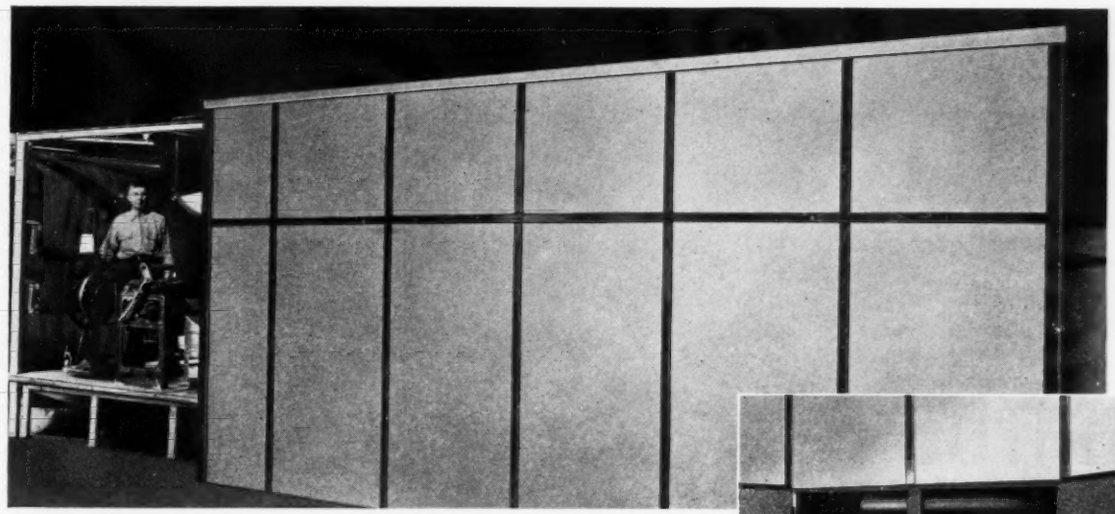
"It is only natural for men who are constantly beleaguered by salesmen to adopt a mask of sales resistance. Some of us pretend to be Tough Guys. Others pose as Funny Guys. And today a slew of us, admittedly grasping at an excuse to defer decisions, have adopted the downcast attitude of the Sad Guy.

"But all of us have one thing in common . . . we hang up our masks of sales resistance when we pick up COTTON. We pay subscription cash for it because it brings us money-making ideas suggested by editors who know the textile industries inside and out.

"We read the advertisements, too, because we know that any advertiser in COTTON is addressing his message to us because he has something real to offer . . . not because he gets editorial 'puffs'. Those advertisers' salesmen stand the best chance of getting back of our protective masks when they call!"

THIS *new* CONDITIONER

DELIVERS CLOTH AT 30 YARDS PER MINUTE WITH GUARANTEED UNIFORM REGAIN.



The new Hunter Brilsonair Cloth Conditioner, embodying a totally new principle of restoring natural moisture to cloth after finishing, is setting new records for evenness and uniformity, flexibility and production. For example:—

One unit occupying less than 35 feet of floor space, installed in a Massachusetts mill, is conditioning worsted fabrics at 30 yards per minute with absolutely uniform regain and improved finish. In another New England mill, a smaller Conditioner gives comparable results at 25 yards per minute on fabrics ranging from 11 to 32 ounces. Furthermore, it is producing the desired regain within unvarying limits.

The Conditioner comes complete with air conditioning unit, the necessary motors, fans, heating coils, housing and control instruments. You need only wire the motors and bring your steam and water lines to the Conditioner, and you are ready to run.

Any mill man interested in guaranteed evenness of regain at high speeds, reduction of offshade goods, flexibility and uniformity in this important new field, is invited to mail the coupon.

NOTE: Hunter Brilsonair Conditioning and Drying Systems, designed, manufactured and sold jointly by the James Hunter Machine Company of North Adams, Mass., and the Bridges-Wilson Corporation of Boston, Mass. For complete details on room, yarn or stock conditioning, write either company.

JAMES HUNTER MACHINE COMPANY
NORTH ADAMS, MASS.

Southern Agents: Carolina Specialty Co., Charlotte, N. C.
Western Representative: E. G. Paules, 343 Bendix Bldg., 1206 Maple St., Los Angeles, Cal.
Canadian Agents: Colwool Accessories Limited
126 Wellington St., West, Toronto

James Hunter Machine Co.
North Adams, Mass.

Please send full details on the Hunter Brilsonair Cloth Conditioner.

Name .....

Mill .....

Address .....

Aye, SIR

AND A **SAVINGS**, TOO
with
JACOBS
Individualized

- LABELS
- BANDS
- TICKETS
- STICKERS
- HANG TAGS
- BOX TOPS
- RIDERS

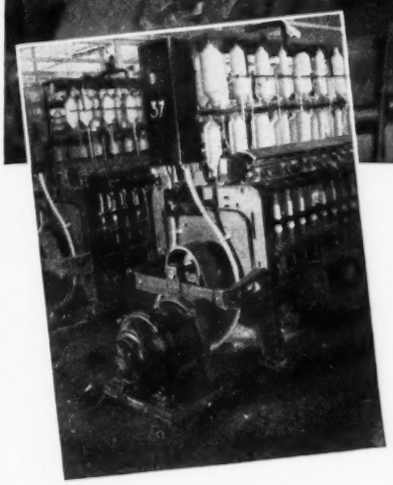
an Inquiry will not obligate you

THRIFT

JACOBS
GRAPHIC ARTS COMPANY
CLINTON, S.C.

"They're Cleaning Fine!"

Say Users of the G-E Screenless Open Textile Motor



In this mill in the South, 40 G-E screenless open motors are operating continually under unusually linty conditions. These motors have a number of refinements, such as connection of the leads through the end frame, which eliminates lint-catching by a conduit box. Control devices shown are G-E combination magnetic switches and master switches.

Send for Bulletin
GEA-1557A

ATTENTION, you who have been concerned about lint-laden spinning-frame motors!

Now you can get a motor that will expel lint, that is well ventilated, that has proved that it excels in these respects, and which also includes the previously well-established G-E motor features.

From many mills now using this textile motor comes the report:

"They're cleaning fine—better than any we've had before."

These reports are based upon many months of operating experience. They are "under-fire" confirmations of tests made of the design before this motor was offered for sale—tests which showed that this design and size-group* of G-E motors remained clean long after other motors were clogged.

This motor, announced at the Southern Textile Show in 1937, has—to put it mildly—made a hit wherever it has been applied. We invite your specific inquiries, addressed to either the G-E office nearest you or to General Electric, Dept. 6—323, Schenectady, N. Y.

*7½ to 15 hp

GENERAL ELECTRIC

011-330

WHY THE ROTOCURE PROCESS OF PRODUCES

THE BWH Rotocure Process of Continuous Vulcanization is the only practical method of producing uniform rubber belting entirely free from press overlaps. It solves the problem because the belting is processed on an exclusive patented rotary type of press, radical in principle. It substitutes uniformity for variation by making the vulcanizing process automatic instead of spasmodic. Uniformity results not from the skill or experience of the operator, but from the unvarying precision of the machine. The result: a uniform belt uniformly vulcanized and uniformly stretched, that will give uniform service.

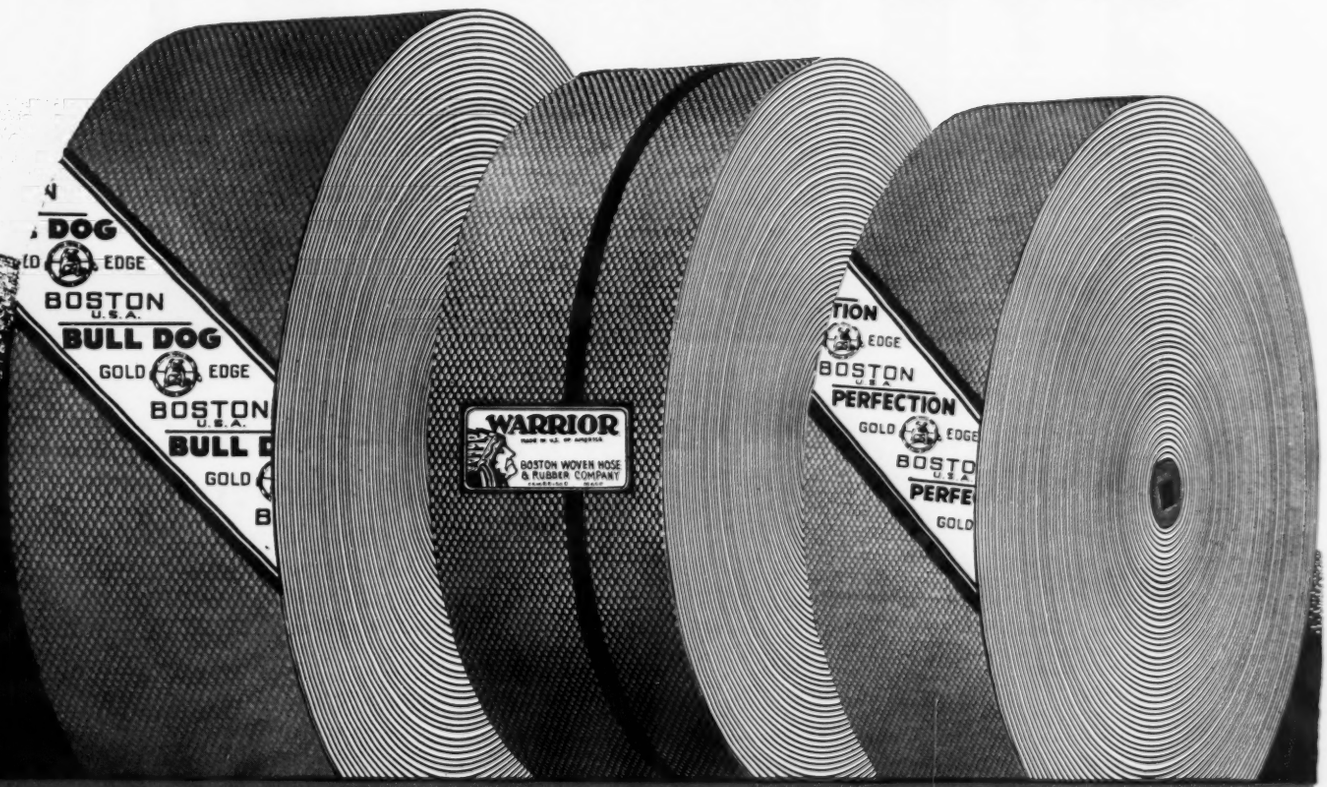
The advantages of continuously vulcanized belts and the economy which they represent in the operation of your plant cost you nothing. BWH belts, made by this process, are competitive in price. You pay no premium for this extra measure of quality and service. It is only necessary to order belting by name and specify the BWH brand which best suits your service requirements.

BOSTON WOVEN HOSE AND RUBBER COMPANY

BOSTON WOVEN HOSE

CONTINUOUS VULCANIZATION

BETTER BELTS



BULL DOG

For the severest requirements of drive and endurance. Extreme and uniform flexibility to meet difficult driving conditions. The gold standard of belt value. No drive too hard. No service too severe.

WARRIOR

Built of special 32-oz. duck, folded construction, highly resistant to stress and strain, and with high quality friction between the plies. For hard general use where sturdy and consistent performance is required.

PERFECTION

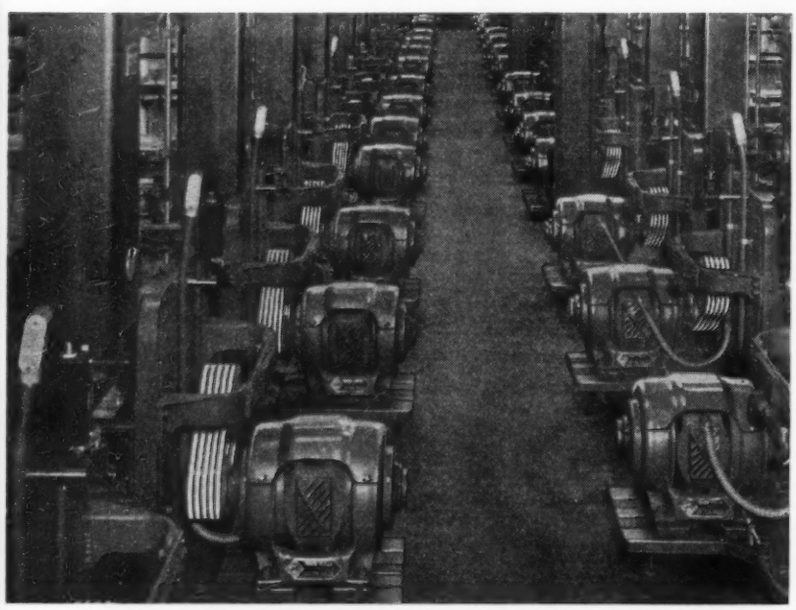
Built on a proved principle — many plies of relatively light-weight duck instead of a few plies of heavy duck. Widely used in the lumber industry on woodworking machinery; also for motor fan and centrifugal pump drives.

The above belts are made in all standard widths and any number of plies to meet specified conditions. Made endless if desired.

& RUBBER COMPANY CAMBRIDGE MASS. U.S.A.

One way to keep OUT OF THE RED!

Install Allis-Chalmers QUICK-CLEAN Motors . . . Designed and Built for Textile Mills . . . They Do Not Plug with Lint and Fly . . . They Keep Your Production and Profit Curve Up.



Here's a textile mill fully equipped with Allis-Chalmers "Lo-Maintenance" Quick-Clean Motors. Its owners have found their service costs cut to the bone and profits increased.

Nothing runs up production costs more surely and quickly than shutdowns because of motor failure. The difference between red and black on the balance sheet is often determined by the amount spent for motor maintenance. For insurance against this waste, install Allis-Chalmers QUICK-CLEAN "Lo-Maintenance" Motors—Motors that give you years of uninterrupted service.

In textile mills everywhere, QUICK-CLEAN Motors are turning in records for trouble free operation. Their glass smooth surfaces give dust and lint no foothold . . . all working parts are positively dust sealed . . . lint and dust (which you can't avoid) pass right through the big unrestricted air passages. This means trouble-free operation and a saving in service costs.

No Costly Shutdowns!

Informed mill owners and textile production men have found Allis-Chalmers "Lo-Maintenance" Motors the sturdiest on the market today. They recommend them for their ability to keep up production without costly shutdowns that cut so deeply into your profit column.

Call the nearest Allis-Chalmers motor representative. Have him show you how much you can save in service costs and how you can increase profits with Allis-Chalmers QUICK-CLEAN "Lo-Maintenance" Motors.

MOTORS FOR ALL APPLICATIONS
FROM ½ HORSEPOWER AND UP

ELECTRICAL DIVISION
ALLIS-CHALMERS
MILWAUKEE · WISCONSIN

Be sure you get *all* of these advantages in HUMIDIFICATION *and Evaporative Cooling*

WHEN YOU decide on a new humidifying and evaporative cooling system for your mill, you are entitled to expect that the system selected will bring you certain definite advantages. We believe that a soundly engineered system should assure:

★ Proper regain accurately maintained at all times.

★ Minimum operating cost.

★ Elimination of "window opening and closing" nuisance.

★ High product quality.

★ No more "wetting-down" troubles.

★ Better working conditions for employees.

★ Increased employee efficiency.

To textile mills who want to make certain of these advantages, Sturtevant offers an experience of over 30 years in humidification and evaporative cooling. It is a highly specialized experience that eliminates costly experimenting.

Why not discuss your problems with one of our engineers thoroughly familiar with textile mill requirements, who would welcome an opportunity to cooperate with you. Our nearest office is at your service.

THE COOLING AND AIR CONDITIONING DIVISION
B. F. STURTEVANT COMPANY · *Hyde Park, Boston, Mass.*
ATLANTA · CAMDEN · CHICAGO · GREENSBORO · LOS ANGELES · NEW YORK

Sturtevant
REG. U. S. PAT. OFF.
Puts Air to Work

CONTROL

Perfect balance and control, so necessary in many things, are vitally necessary in the manufacture of quality starch. With hair-breadth accuracy quality features are controlled in the manufacture of STALEY STARCHES.

Control of quality and uniformity, to an extent unheard of before, is constantly maintained. And all of this is watched over every minute through scientific testing by highly trained experts in Staley's modern laboratories.

Such perfect control assures you starch quality and uniformity—assures you time and labor saved in preparing more efficient size mixtures—assures you the perfect penetration, adhesiveness and elasticity you want—and finally an unvarying, non-shedding warp yarn with flexible strength that weaves smoothly with less loom stoppages and no chafing.

A. E. STALEY MFG. CO., DECATUR, ILL.

Atlanta	Dallas	Chicago	New York
Spartanburg	Philadelphia	Boston	San Francisco

STALEY

STARCHES

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JUL 18 1938

VOL. 102 — JULY, 1938 — NO. 7

COTTON
SERVING THE
Textile Industries

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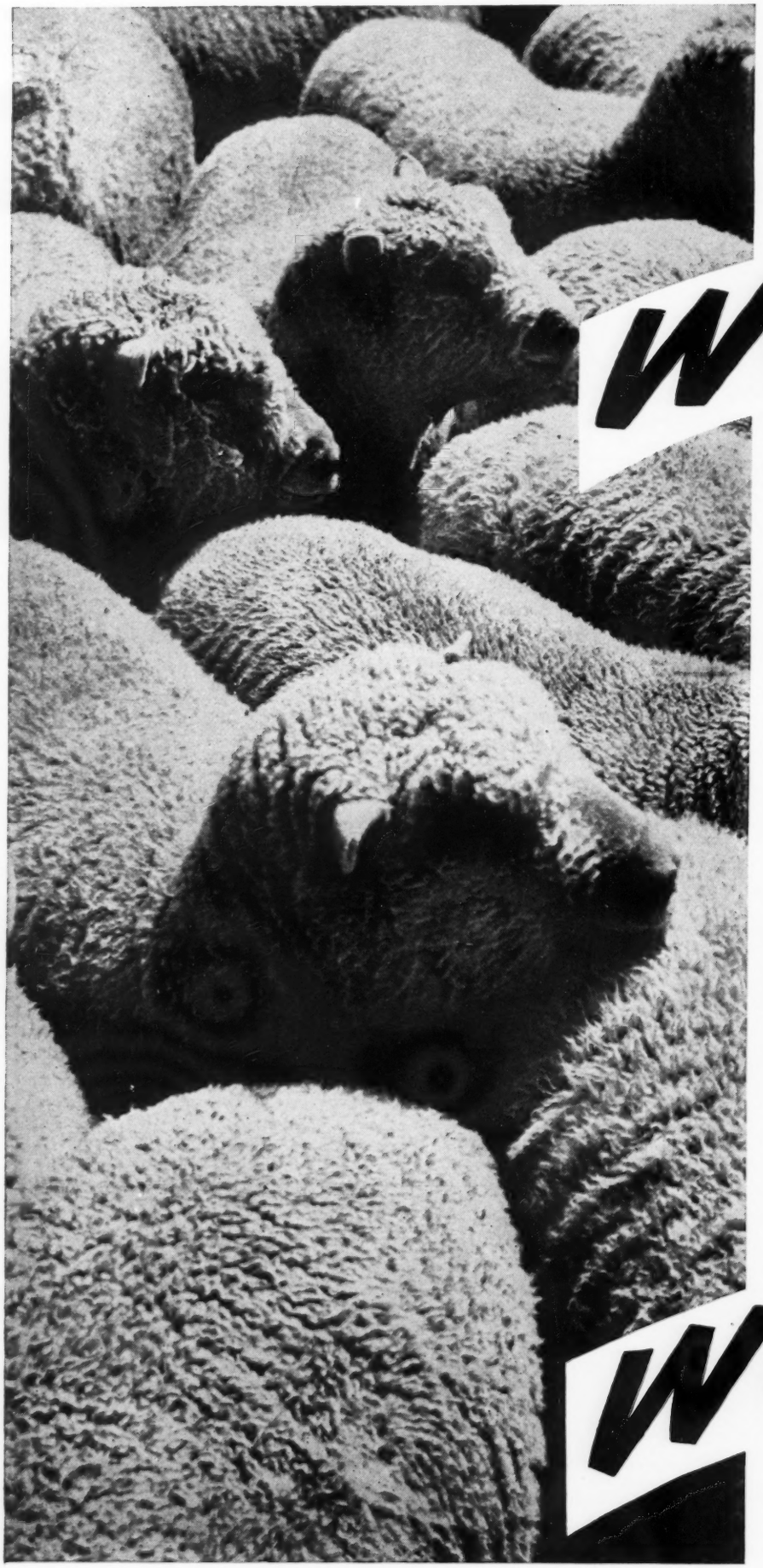

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Jacques Wolf can supply you with textile chemicals for every operation—oiling, scouring, dyeing, stripping, finishing, waterproofing and printing. Samples of any product will be sent on request.

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WATERPROOFING: W-559 for a stable emulsion giving a water-repellent finish in a one-bath process.

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SHORTS AND REMNANTS

Strictly speaking, this one is not textile in character, but F—— E. C——, Jr., president of a group of southern mills, submitted it to one of our editors while they were listening (?) to a speech at one of the spring conventions. After returning home, the editor solved it, and submitted his solution to Mr. C——, who said it was correct. Here is the problem:

```
xx ) xxxxxxx ( xx8xx
     xxx
     ---
      xx
      xx
      --
      xxx
       xx
       --
        8
```

The trick is this: Considering each "x" in the above as a digit, and with only the two "8s" as shown known, fill in the rest of the calculation.

It can be done, by a little logical reasoning, and arithmetic.

Send us your solution. The contest is open to all. We offer no prizes, but neither do we ask you to send any labels, box tops, or even covers of COTTON or fac-similes thereof.

If you can't work it, we'll send you the correct method on request.

◆

Wanted—1,000,000 pairs of hosiery

"We are endeavoring to contact a stocking manufacturer who can furnish us with about one-million pairs of ladies' and men's hosiery within six to eight months.

"This hosiery is to be made under our own label, the ladies' to cost about 20 cents a pair, and the men's about 10 cents per pair. We would like to have information on full-fashioned silk, rayon-chardonized hose for ladies; silk and rayon, and pure silk for men."

WM. T. GROSS
Secy. National Advertising Agency
Milwaukee, Wisconsin.

Any full-fashioned hosiery manufacturer that can make any money on 20c a pair is welcome to write Mr. Gross. We don't know. This inquiry referred to the National Association of Hosiery Manufacturers.

◆

Blanket Manufacturers

"This is to acknowledge and thank you for yours of May 26 giving us a list of southern blanket manufacturers. This will be of considerable help to us in contacting our Southern manufacturers as there are some on this list with which we are not acquainted."

W. F. ODOM
Sayles Biltmore Bleacheries, Inc.
Biltmore, N. C.

May Textile Associations Issue

"I would like to commend you and your associates for your enterprise in devoting an issue of your publication COTTON to a presentation of the trade associations which serve the textile industries, because the part which they are playing in the shaping of the courses and policies of their industries is growing more important as time goes on.

"Regardless of what party may be in power we are headed definitely in a direction in which industries will have to deal more and more with common problems, the handling of which can be done alone through the medium of trade associations. Not only government but likewise consumer and other forces increasingly present proposals which must be considered and dealt with by an industry as a whole. The trade association offers the medium for this, and the editorials and articles in your May issue contribute toward making the situation clear."

EARL CONSTANTINE
Pres., Natl. Assn. of Hosiery Mfrs.
New York, N. Y.

"I am particularly interested in this issue [May] and will want to keep a copy for reference, as it gives such a good description of the various associations and how their functions fit into the picture as a whole.

"You are to be complimented not only on the make-up, but for conceiving the idea in the beginning."

RUSSELL T. FISHER
Pres., Natl. Assn. of Cotton Mfrs.
Boston, Mass.

"Relative to the May issue of COTTON, you are to be congratulated. Despite my own contribution you did a masterly job. I learned much about the view points and procedures of the other associations which should be valuable to me."

CLAUDIUS MURCHISON
President,
The Cotton-Textile Institute, Inc.
New York, N. Y.

"Will you please forward a copy of the May issue of COTTON at our expense to Mr. L. R. Macgregor, Australian Trade Commissioner in Canada, 15 King St., West, Toronto 2, Canada."

EDWIN WILKINSON
Natl. Assn. of Wool Mfrs.
New York, N. Y.

"I have carefully gone over this issue [May] and wish to congratulate you on the reading matter compiled in this issue. It certainly is fine and I believe the entire textile industry will appreciate this.

"It was a pleasure for me to comply with your wish, and you probably know we have for a number of years subscribed for a number of copies of your magazine for the various foremen in our plant. They always enjoy the magazine very much."

P. W. ESHELMAN
Pres. and Treas.,
Wilkes Hosiery Mills Co.
North Wilkesboro, N. C.

International Department

"Durfte ich Sie bitten folgendes Jnserat vorerst einmal aufzunehmen zu einem kulanten preise. ca. 2 Dollar.

Gesucht: C o t t o n
fur Germany. Geboten werden,
prima Kompensat. Werte, gold
security, I. Bankrefenrenzen.
Ang. an Otto Ziehn, Eisenach,
Germany.

"Jn Verbindung mit einer leistungsfahigen Baumwollspinnerei in Germany suche ich groBere Posten Rohbaumwolle durch Verrechnung reichsdeutscher Vermogenswerte, im Rahmen der reichsgestzlichen Devisenbestimmungen."

OTTO ZIEHN
Eisenach, Germany

Mr. Ziehn wants to buy cotton for German spinning plants. Cotton firms please note. Fortunately our barber is a good German and we read a little Spanish ourselves, so they can't stump us on these. We do admit that Russian is more of a problem. On the day the above came in there were two others from Germany, one a textile book review, another from manufacturer wanting representation. The day prior, three letters came from India, two requesting advertisers' catalogues, one asking information. The next day's mail brought booklet requests from Canada, Australia and Japan. Most foreign letters are written in English. Maybe we should try answering in their language.

◆

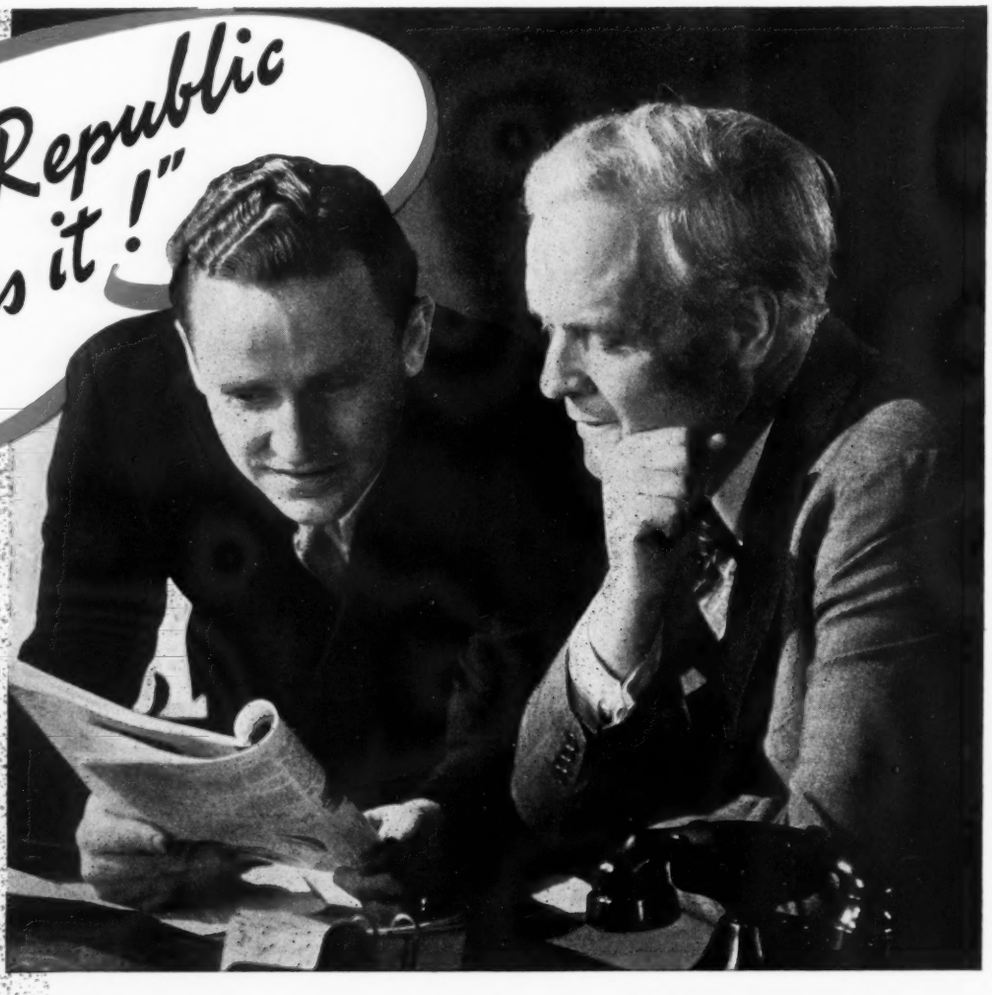
Site for Sale

"We have a nice site, suitable for a knitting mill or a silk mill. The site is located on a paved street in a good part of the city.

"We would be willing to pay you a percentage if you could secure us a customer for this site. We are quite sure the necessary labor would be available here."

◆

Richard P. Smith, advertising manager of "Cotton", is shown in this candid camera shot with the other members of his foursome at the Southern Textile Association convention in Blowing Rock last month. Left to right: Smith, J. M. Gregg, of U S Bobbin & Shuttle Co.; N. G. Hardie, general superintendent, C h a d w i c k-Hoskins Co., Charlotte; and Howard R. Hart, general superintendent, Greenwood (S. C.) Cotton Mills.



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NILES STEEL PRODUCTS

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If "it" is a steel or any one of countless steel products, Republic makes it. And whatever "it" may be, you can be sure that it will be of the same uniform high quality as the Republic Steel products with which you are familiar.

Through the complete line of steels and steel products of its divisions and subsidiaries, Republic offers a centralized source of supply for practically all of your needs in steel. Offers you a means for simplifying your purchases. Brings the entire shipment to you at one time. Requires but one order, one shipment tracer, one invoice, one check.

For full details on the complete Republic line, write Republic Steel Corporation, Cleveland, Ohio.

PRODUCTS OF UNION DRAWN STEEL DIVISION THAT YOU SHOULD KNOW ABOUT—

A complete line of fine quality cold drawn bar steels in standard and special sections, in all carbon, alloy and stainless steel analyses, and in a wide range of sizes. Cold finished shafting for all purposes.

COTTON
SERVING THE
Textile Industries

July 1938 Vol. 102 No. 7

Some Thoughts on Research

THE VISIT to the United States of Frank Nasmith, president of The Textile Institute, of Manchester, England, and J. R. S. Goodall, chairman of its diplomas committee, focused attention particularly on textile research and education. A well-planned itinerary, arranged by the American provisional committee in charge of the tour, provided excellent opportunity for the distinguished visitors to learn firsthand of work being done along these lines in this country, and gave interested leaders in this country's industry a like opportunity to learn of activities along similar lines in Great Britain.

Well-posted men in the American industry have long regarded The Textile Institute, along with the Shirley Institute, also in England, as a most conspicuous and most effective single research organization, outstanding in the textile industry of the world. Recognition of its position is in no way a reflection upon the splendid work being done on many fronts in this country. Conditions of organization, and within the industry, have contributed to the success and eminent position of the English Institute.

The purpose of the visit of Messrs. Nasmith and Goodall to the United States was to discuss with leaders here the aims and achievements of the Institute, and to urge closer co-operation.

Research work, in close relationship with every division of the British textile industry, constitutes one of the Textile Institute's chief objectives. It carries on, with a full-time staff of trained men, and with adequate facilities, a large amount of fundamental research, and also deals with the special problems of individual companies, the latter being mostly on work control problems. Mr. Goodall, in describing the Institute's research work, said that the United States was more practical in its own efforts—going on the theoretical question, "Would it sell?"—while the English go more into fundamental research, and occasionally find something that will sell. "Our objective, said Mr. Goodall, "is to pool ideas in the English-speaking world."

Certainly the textile industry needs research. And through research of the proper type, with proper and adequate financing, this industry could reach unlimited possibilities in the fulfillment of the desires of the consumers, through new uses and better styling.

As to the related subject of textile education, we do not know just where properly conceived and executed plans might lead us. Probably, for example, into the plastic field, for in that direction lies the trend of newest thought. For illustration, the development of chemical plastic which may revolutionize construction methods, and open wider the market for the South's major farm crop, in the use of cotton for airplanes of the future. We are told of a new chemical cellulose plastic, which has 90 per cent the strength of duraluminum, and one-fourth the weight of certain alloys with far greater heat resistance. The plastic can be made in thin sheets which bend like sheet metal, or with the rigidity and strength of metal girders. It has lightness and strength and can be molded to any shape, size or thickness, thereby making for lighter, speedier planes and faster construction. An experimental plane has been built of the plastic and is now undergoing rigid tests.

Interest in Greenville Show Increasing

ACTIVE INTEREST on the part of exhibitors in the 13th Southern Textile Exposition, to be held at Textile Hall, Greenville, S. C., during the week of April 3 to 8, 1939, is rapidly increasing. The director of the show has announced that already more than 90 per cent of the space has been spoken for, and that most of the nationally known makers of textile machinery, equipment, accessories and supplies have signed contracts. The list of exhibitors will be announced in July. Further expansion of facilities, by enlargement of the temporary annex, has been necessary.

As previously noted, the opening and closing hours of the show have been altered. On Monday, the show will open at 11:00 A. M., and close at 9:00 P. M. On Tuesday, Wednesday, Thursday, and Friday, the hours will be from 9:30 A. M. to 9:00 P. M. The hours on Saturday will be from 9:00 A. M. to 4:00 P. M. This schedule represents earlier opening and closing hours than the 10:00 A. M. to 10:00 P. M. schedule that has prevailed. Following much discussion at the 1937 show, COTTON conducted a poll among exhibitors and mill men, finding an overwhelming preference for earlier hours of opening and closing the show. Subsequently, the exposition management canvassed several hundred exhibitors, and as a result of the findings, established the new hours as given, which, it is felt, will result in greater convenience for the exhibitors and mill men, without affecting the value and efficiency of the exhibition.

Look Out for Bombs

TEXTILE MEN in the United States rightly feel that during recent years they have been forced into unnecessary and restrictive activities. Paul McKenney, at Sea Island, related the tremendous increase in the number of tax returns imposed by Social Security, etc., and the startling increase in clerical help required thereby. Often a mill superintendent feels that his insurance company inspector is too strict and too exacting.

But "everything goes by comparison". We have just read, in the formal announcement of a textile machinery exhibition to be held in Manchester, England, this fall, that in addition to looms, spindles, winders, etc., "*there will be shown examples of Air Raid Precaution equipment for textile factories.*"

At least *that's* an emergency that doesn't confront the American mill manager—yet.

Why Not, Mr. Whiskers?

A RECENT OFFICE VISITOR, a southern mill executive who unceasingly is waging the war against jute competition, projected an interesting thought. "The government," he said, "convincingly tells us, when we complain against government competition on textiles from prison-made goods, that it is essential that they operate mills in the penitentiaries to provide employment for the inmates.

"If that be the case, then why not let prison labor make jute products instead of cotton products? Why not take jute fiber and make jute yarn, and jute yarn and make jute fabrics, and thus have free prison labor compete with coolie labor paid a few cents a day, instead of competing with American labor that is paid the highest prevailing wage for the shortest workweek in the world?"

Why not?

"IS THERE anything in the attitude of government toward honest business today," a mill man asked recently, "that would cause me, if my plants should be destroyed by fire and tornado, to take my insurance claim and rebuild them?"

Quotable Quotes

On Management, by Henry P. Kendall, president of The Kendall Company:

"Management holds in trust potentialities for great good, and the primary responsibility upon management is to execute the trust always in such a way as to be a thoroughly constructive factor, economically and socially. There has been a greater contribution by management to the up-building of the community in the large sense than commonly is recognized, and there is a vital obligation upon management today to interpret its aims and methods to the end that there will be a wider realization of its place and significance.

"Management cannot do everything alone. Its primary responsibilities are to its employees, to the communities in which it operates, to its customers, to its suppliers, to its stockholders, and others with whom it does business. Management's first obligation is to conduct its operations so that all these elements are advantaged. We will be well thought of by the public only as our dealings are of such a quality as to deserve good will."

On Public Relations, by Marshall Beattie, president, Woodside Cotton Mills Company, Greenville, S. C., and Piedmont (S. C.) Mfg. Co.:

"The textile industry of the South was largely established by men of most rugged individuality, as all pioneers must be. * * * The South still bears too much of that original imprint of rugged individuality; too great a tendency to cling to the 'laissez faire' policy, and too many of us still have too little deference for public opinion. In a democracy such as ours, public opinion is a powerful factor, it is the final arbiter in deciding what is fair for both capital and labor. With a craving to be let alone, we have been too indifferent to the need of doing our part to see that public opinion is properly shaped, and it can be properly shaped only when it is correctly informed."

On Industrial Relations, by William P. Jacobs, secretary-treasurer, Cotton Manufacturers Association of South Carolina:

"What we need more than all else in this industry today is to be let alone. We are all individualists—employers and employees alike. The same can be said for the public. We should cease this wild orgy of regulation of the employer, for with it automatically goes the responsibility for the regulation of the operation of the employee. What we need is not regulation, which says, 'Thou shall not', but stimulation and inspiration, which says, 'I can and I will'."

On Competing Textile Fibers, by Claudius Murchison, president, The Cotton-Textile Institute, Inc.:

"No one fiber progresses wholly at the expense of the others. Although rayon has cut heavily into the market for cotton and silk, it certainly has not displaced them by an amount equal to its own volume. We must give rayon credit for having contributed to the sum total of the volume of textile consumption.

"With equal truth it can be stated that if one fiber loses ground either through physical or merchandising deficiencies this loss does not represent a 100 per cent gain for its competitors. Under such circumstances the deficient fiber is acting to reduce the sum total of fabric consumption. * * * There is abundant room for the even advance of the natural and synthetic fibers without any one of them seriously crippling the other, and without diminishing the high degree of competition. Whatever progress one makes in processing methods, in styling, and in merchandising, should serve as a stimulus to the others."

On the Trend of Industry of All Kinds to the South, by Roger W. Babson, noted economist:

"Modern roads, splendid transportation facilities, a good labor supply, a warm climate, rich natural resources, and progressive leaders mean that the center of industry will continue to drift South for many years to come. The South is an empire in itself—young, vigorous, growing."

A Discussion and Description of "PERMANENT FINISHES" for TEXTILE FABRICS

By J. Andrew Clark

Article I — Definition, history and development; the Heberlein process

A POPULAR and valuable contributor returns to our columns with this discussion of a timely and important subject. Permanent finishes on textile fabrics have been in the limelight frequently within recent years. Much unrelated and some conflicting information has appeared. We asked Mr. Clark to review the whole subject and to clarify it for you. He has covered the developments leading up to the current methods, and discusses present-day practice. His presentation gives a broad and thorough description of the whole matter.

The accompanying first installment starts with the work of John Mercer, and covers in detail, among other developments, the Heberlein process with methods used.

The second installment, to appear soon, will discuss in detail the materials, methods and practices involved in producing permanent finishes particularly with the alkali soluble cellulose compounds and synthetic resins . . . . . .

PERMANENT FINISHES on fabrics are not at all new in conception, and have been gaining momentum slowly in the public consciousness for the past few years, until there now appears promise of a considerable market demand for cotton fabrics in these finishes, on a wide range of fabrics. With the retail purchaser fast-color conscious, as well as demanding garments warranted against shrinkage, the demand for a finish that is resistant to laundering is only a logical development, and this demand can now be supplied in a wide range of finishes.

Spasmodic attempts have been made during many years to introduce various types of permanent or laundry-proof finishes to the trade with little or no success, except in very restricted lines. The high cost of the earlier procedures, as well as technical difficulties, defeated these attempts for the most part. A permanent finish, moreover, was of little value on a garment having excessive shrinkage, nor was there much sense in applying the finish to fabrics dyed with fugitive colors. The increasing application of Sanforizing, as well as the wide use of vat and other fast colors, has thus prepared the public for a favorable reception of these various permanent finishes. Notable exceptions to the above were the successes obtained with organdy and a line of Jacquard table damask, each of which has enjoyed long and favorable reception in the retail market.

The Real Meaning of "Permanent" Finishes

One of the most serious handicaps in the promotion of these products, however, is the curious optimistic psychology that initially characterized these finishes as "permanent", in much the same manner that "shower-proofing" was originally misnamed "water-proofing". "Permanent", in the public mind, would seem to mean just that, even to the retention of the original calender effect, as well as the hand and general appearance. Unfortunately these claims will require some modification, if consumer respect is to be retained, for after all, while these finishes are excellent, withstanding laundering remarkably well to the order of 20 to 50 successive times in some cases, they do show some loss and change from their original condition. The fabric will, nevertheless, retain definite and generally satisfactory characteristics of the original finish during the life of the article.

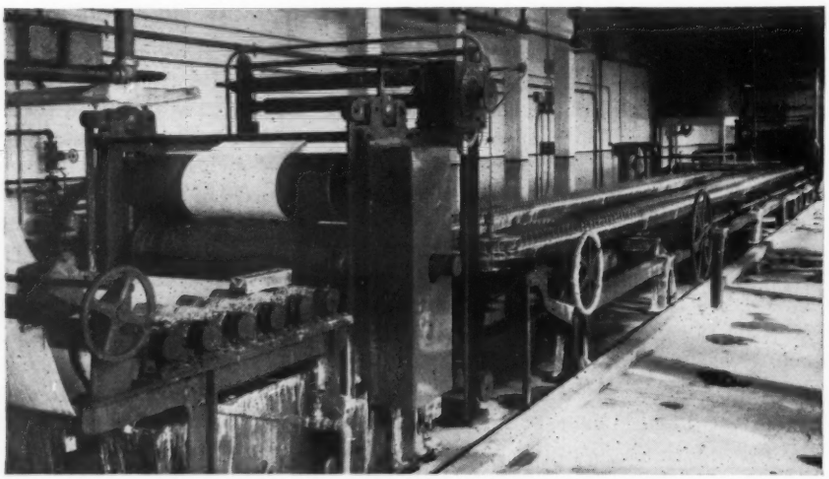
Permanent finishes can be divided roughly into two classes. The first and elder of which depends on chemical treatment to modify the cellulose, while the second class is obtainable by impregnation, either within or on the surface of the fibers, with materials capable of coagulation or condensation in place, thereby acquiring a permanent character.

Mercer Started It in 1844

John Mercer initiated permanent finishes with his discovery in 1844 of the changes produced by strong caustic and acids on cotton. In his patent of 1850—"Improvements in the Preparation of Cotton"—he describes the treatment of cotton and other vegetable fibers with caustic soda, sulphuric and other acids, as well as zinc, calcium and stannous chlorides, to produce increased strength, solidity, and increased affinity for dyes, while noting the production of a parchment-like and stiff effect produced with some concentrations of acid. Mercer unfortunately did not employ tension, and as a consequence was unable to produce the modern lustrous

finishes with caustic soda. His treatment consisted of either padding at 60 degrees F. with 60-70 degree Tw. caustic or immersing at 40-50 degree Tw., followed by washing, souring, and rinsing. In his description of the acid treatment, he described three different effects obtained by differences in concentrations. The second of these was the one specifically claimed as the object of the patent. Sulphuric acid at 110 degrees Tw. and at 50 degrees F. was claimed to yield a soft fabric with a hand similar to glove leather, with only very little shrinkage taking place. When the concentration was increased to 114-115 degrees Tw. there was considerable contraction and the cloth finished stiff, white, and very opaque. Within the range of 116-125 degrees Tw. the cloth was said to be semi-transparent, stiff and greatly contracted.

The most widely practiced improvement to Mercer's process is the production of a lustrous finish by the application of tension to the caustic saturated yarn or cloth, during the period that the alkali-cellulose is being hydrolized and washed to remove caustic. This was described by Lowe in his patent of 1890. Mercerization as now practiced is so well understood and its effects so well known, that an extended description of the operation is unnecessary in this article. While the production of luster is the primary object of this process, characteristic changes also occur in the feel and appearance exclusive of luster. The yarn becomes more dense, while the fabric feels threadier and appears more open, effects which are retained to some degree after several laundry treatments.



Photo, courtesy H. W. Butterworth & Sons Co.

A mercerizing frame, showing the pad, squeeze, frame and washers. This method represents one of the earlier forms of applying permanent finishes . . . . . .

Half-mercerizing, using caustic of approximately 25 degrees Tw. is frequently employed in dyeing vat colors, both for increasing the affinity of the cellulose for the color as well as to overcome the poor dyeing qualities of immature cotton. This treatment is accompanied to a lesser extent by the same physical changes in the appearance of the cloth, as when the stronger caustic is used. The feel is thready, linen-like, without excessive luster, and can be modified to increase the effect with caustic of slightly higher concentration. One prominent line of sheetings seems to be finished in this manner.

Although mercerization effects can be thought of as permanent, the luster is gradually removed with repeated launderings, and even though the products of some plants are more resistant than others, the finish generally suffers from the fact that the cellulose after mercerization is much more reactive, swells more when wet, and hence is more susceptible to mechanical damage of the surface during laundering than is the untreated cotton.

The Heberlein Process

Modifications of Mercer's caustic treatment have been successfully employed to produce permanent novelty effects, such as crepes, plisse, and seersucker, for some time. The principle involved for the most part was the local printing of a strong caustic paste as a pattern, which after washing produced the desired effect by unequal shrinkage. A brocaded effect may be produced by the use of suitable tension, as in the regular mercerizing process, if patterns have just been printed capable of resisting the action of the caustic.

Heberlein, in his British Patent No. 108,671, claims to produce a permanent translucent finish which is retained after washing and drying by the use of caustic at 50-55 degrees Tw. for one minute at —10 degrees C. This finish is said to have little or no applications except as a preliminary step in Heberlein's permanent organdy finish.

The development of permanent finishes from Mercer's original parchmentizing with sulphuric acid has been successful in yielding novel results as a result of work done by various investigators. Among these Heberlein achieved notable success in his modification of the original treatment to produce the well-known permanent transparent organdy, as well as his opal and wool-like finishes. He observed that if cotton is first mercerized, the action of the acid is much more intense and imparts entirely new qualities to it when the acid is within the range of 49 to 50.5 Be. To quote from his U. S. Patent No. 1,292,264 (1924), "the mercerizing luster disappears and instead of the transparency obtained with the higher concentrations, the fabric assumes a fine crepe-like nature, whereby it appears thicker, fuller, more wool-like, softer and is generally improved in its entire quality, and takes on the character of a fine thin woolen material, such as, for example, as fine thin wool muslin." He claims that this effect can be obtained if these operations are reversed. In either case, the use of tension is to be avoided. Alternately, the sulphuric acid may be replaced by either of the following: phosphoric acid 55-57 degrees Be., hydrochloric acid 1.19 sp.gv., at low temperature, nitric acid 43-46 Be., zinc chloride 66 degrees Be. at 60-70 degrees C.,

or ammonical copper oxide with a short reaction period. Heberlein, however, claims that the use of sulphuric acid produces the best results, and that these finishes retain their characteristics unaltered by repeated launderings.

In his U. S. Patent No. 1,392,265 (1924), he points out that by treatment of mercerized cotton with sulphuric acid above 50.5 degrees Be. a true transparent effect, suitable for the production of an organdy is obtained. The best transparency is claimed to be obtained by several alternate treatments. Variations can also be introduced by the amount of tension employed. Various pattern effects have been obtained by special applications of this procedure under this and other patents. The various seersucker or crinkle effects are especially pleasing in permanently finished printed dress fabrics.

Applying the Heberlein Finish

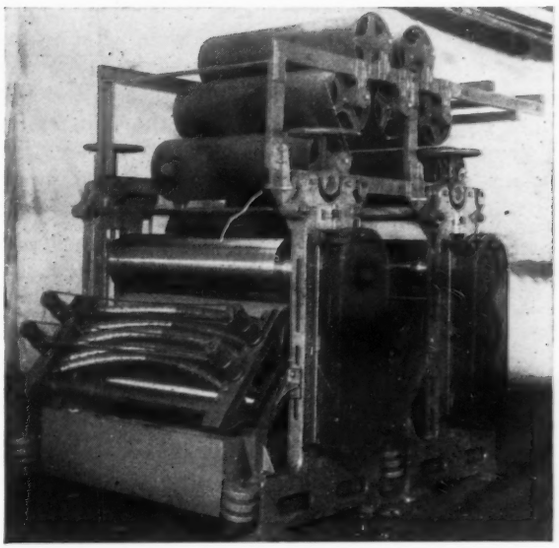
In operating by the Heberlein method finishing plants sometimes employ two ranges. One of these for the production of the permanent organdy is arranged for running the goods with warp tension, the other range for the production of wooly effects provides for the minimum in warp tension during operation. The actual treatment consists in immersing the cloth into cold sulphuric acid at 50.5 degrees Be., or thereabouts, which acid is maintained cold by circulation over brine coils maintained at —10 degrees C. The cloth is then skied for two feet and passed into the nip of a pad, the return from which runs back into the lead-lined pad box. After padding, the cloth is run into two wash boxes at open width. The squeeze rolls of the wash boxes are arranged to give the desired warp tension. The cloth is then run into boxes for further treatment such as dyeing, after which it is finally dried on the swing frame and broken on a button breaker, for the final finishing. Some finishers claim that the ordinary swing frame is incapable of producing the best results, even with an extra long swing. They use for their best finish a 90-foot frame operated by hand to break the finish and give it the proper resilience. This frame is fitted with clips a foot long and has a swing of 45 degrees for which 12 men are required to operate it. This hand framing follows a regular swing frame.

In the production of the wool finish, the cloth is run into the wash box over reels after padding with acid, and then reeled into a box to give minimum warp tension during treatment.

Voiles and organdies, in plain, printed and colors as well as novelty effects on these cloths for summer wear are done in fairly large volume. Handkerchief cloth is often finished by this process without the use of tension.

The foregoing is a description of the final acid treatment, the complete process would include a mercerizing treatment between two with acid, after the first of which drying would not be required.

While these finishes of Heberlein are being produced in this country with excellent success on organdy, lawns, handkerchief cloth, and novelty printed effects, European concerns have operated under



Photo, courtesy The Textile-Finishing Machinery Co.

Two 3-roll padders in tandem, with exposing cylinders for contact of fabric between the two padders . . . . . .

other patents covering the production of these finishes with somewhat different control of the acid, and other operations, as well as with additions to the acid for the purpose of retarding the activity of the action of the acid on the cellulose. Difficulties in technical control has been offered as one reason for the limited use of this treatment.

Wool-like permanent finishes have been produced abroad by the action of strong nitric acid. The grey fabric is saturated with 80 degrees Tw. acid at a temperature of 15-28 degrees C. for a few seconds to three hours. Following this, the cloth is thoroughly washed and neutralized with soda ash. The nitro compounds formed from the waxes, starches, and proteins are deposited in the fiber in a finely divided, colloidal condition to produce the wool-like effect.

Permanent lustrous effects are produced with nitric acid by the application of tension to prevent shrinking as in regular caustic mercerizing. Fabrics treated in this manner also acquire an affinity for acid dyes, as well as an increased affinity for the direct colors. The Heberlein finish is also duplicated by treatment with nitro-sulphuric acids in some other methods.

An organdy finish is claimed by Cheetham, (British Patent No. 225,680) obtained by treatment of the cloth with zinc chloride at 82-104 degrees Tw. The saturated cloth should then be dried on cans, passed into acid to dissolve the zinc salt and then thoroughly washed. A soft transparent finish is said to be obtained by caustic mercerizing either before or after the zinc chloride treatment.

The swelling and solvent action of ammonical copper oxide on cotton has been employed for some time in the production of various permanent finishes. The oldest of these is perhaps the well known treatment of canvas and duck by the Wellesden process to produce a waterproof and mildew resistant fabric. The cloth is padded with a strong solution

of copper hydrate in ammonium hydroxide. Solution of cotton on the surface occurs, which, after evaporation of the ammonia by heat, leaves the regenerated cellulose as a green film on the surface of the cloth. Copper hydroxide deposited within the film inhibits the growth of molds and fungus. This treatment is somewhat expensive, but found use in marine service where the service conditions are most severe.

The Arnold Print Works Method

The Arnold Print Works, in their English Patent of June 7, 1928, No. 282,002, describe a treatment with ammonium copper oxide following a preliminary treatment with caustic soda, to produce linen-like effects. In addition they claimed to produce an improved bonding in laminated fabrics, by this treatment, which would withstand laundering. Cloth is treated with caustic of 30-35 degrees Tw. and dried. Following this it is run into the cupro-ammonium solution for a few seconds, squeezed and dried on a tenter frame. The cloth is then found to be blue in color due to the precipitated copper oxide, but after souring in 6 degrees Tw. sulphuric acid to remove this copper oxide and the residual caustic soda, the cloth is white and can be washed, dried, and finished as desired. The treatment with caustic soda is claimed to increase the intensity of the reaction between the cellulose and the cupro-ammonium solution. A typical bath follows: 40 pounds copper sulphate; 7 gallons strong ammonia—commercial; water to make 25 gallons; immersion—3 to 5 seconds.

Wool-like effects have been obtained by treatment of the grey fabric with cupro-ammonium to produce swelling. Tension must be avoided or the wool-like effect will be absent.

In another treatment, a smooth shiny voile is obtained by treatment of the grey for ½ minute with an ammonical solution containing 18 gm. of copper, 10 gm. of caustic soda and 3 gm. of sulfoleate per liter. It is then caustic mercerized and bleached as usual, including the regular kier boil.

There are probably very few textile chemists that have not tried the viscose reaction on cloth with satisfactory results, at least in the laboratory. Two or three of the large finishing plants, however, attempted to form viscose superficially on the surface of the fibers, on a plant scale, some years ago, by treatment of causticized cloth with carbon disulphide. The procedure apparently was not successful in the plant, while the fire hazard was all but insurmountable. Although the laboratory can produce excellent samples, satisfactory plant control seems to be lacking and exceptional difficulty is encountered. In addition to these drawbacks, the newer finishes would seem to have better laundry fastness than viscose, and in addition can be applied uniformly. Impregnation of the fabric with viscose solution, on the other hand, has been applied satisfactorily on many fabrics for some time, and is an entirely different procedure than that described previously.

The organic bases have powerful swelling and solvent actions with cellulose, which was noted in 1912 by Knecht Harrison, but offered no advantages over the action of caustic at that time, and apparently was of no commercial importance.

Substituted ammonium bases, however, have attained commercial application in this country, in both the preparation of cellulose solutions and the production of permanent finishes by action on the cellulose of the cloth itself. Lilienfeld (U. S. Patent No. 1,771,462) dissolved cellulose in solutions of tetramethul, tetraethyl, and trimethyl, phenyl ammonium hydroxides. Powers and Bock investigated and applied the action of quaternary ammonium bases as swelling agents and solvents for cellulose. These bases generally are preferred with high molecular weights containing at least one benzyl or alkyl group having three or more carbon atoms. These products are quite stable and some of them can be used up to 150 degrees C. if desired. In their U. S. Patent No. 2,040,065 they claim a process of mercerizing by treating cellulose bodies with a dilute solution of a quarternary benzyl ammonium hydroxide. In addition, the addition of a small amount of this material, 1 per cent or so, to the regular caustic soda mercerizing as a wetting agent is claimed.

If instead of using the regular mercerizing procedure, the cloth is dried in a hot frame or on cans after padding with the dilute quarternary ammonium hydroxide, this concentrates in the material to effect a gelatinization of the fiber yielding a permanent finish, said to be fast to laundering. An example given in the patent is; "Cotton broadcloth was (run through a 10 per cent solution of dimethyl di benzyl ammonium hydroxide. The impregnated cloth was then passed through a hot air drier or hot air heated tenter frame. Following this treatment, the fabric was run into a dilute acid solution followed by a rinsing with a solution containing .1 to .5 per cent of sodium lauryl sulphate. A permanent finish is obtained which is not readily removed by repeated washings."

While not ordinarily thought of in connection with permanent finishes, Perkins' "Non-Flam" fireproofing was fast to repeated washing, with satisfactory retention of this safety characteristic. The high cost of application prevents its general adoption, in spite of which it was used extensively in England for treating flannelette. In this process, stannic oxide is formed within the fibers by interaction between the fabric, saturated with a solution of sodium stannate and a solution of ammonium sulphate. The process is carried out by padding the fabric, using heavy pressure on the bowls, with a solution of 45-degree Tw. sodium stannate, followed by drying on cans or a hot frame. The stannate is now decomposed in a bath of 15-degree Tw. ammonium sulphate, after which it is dried, washed to remove residual sodium sulphate and then finally dried.

(The second and concluding installment of this discussion, scheduled to appear in the September number, will deal in detail with the current use of alkali soluble cellulose compounds and synthetic resins in producing permanent finishes. It will describe materials used and procedures and methods of application. The August number will contain the fourth installment of the series on textile printing by C. Norris Rabold.)

Interesting and Modern Steam Plant at Uxbridge Worsted Company

By Joseph C. Bogue

As Told to Francis A. Westbrook

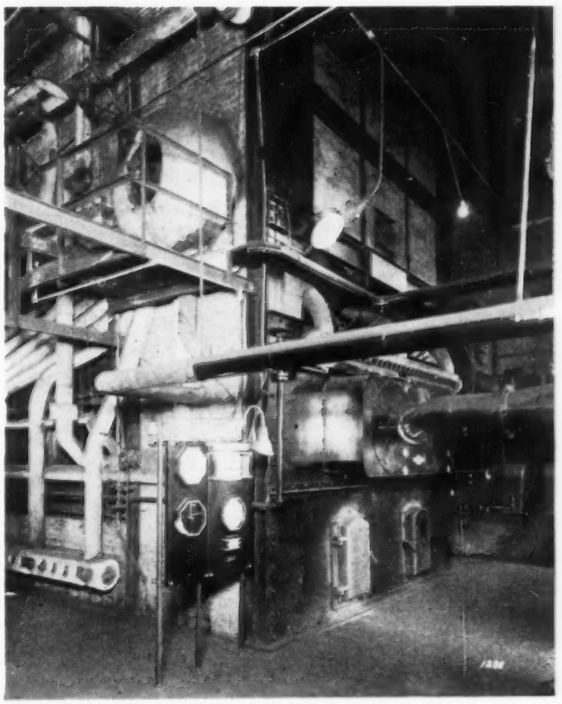
THE UXBRIDGE WORSTED COMPANY, INC., of Uxbridge, Mass., has recently completed the installation of a modern water tube boiler, in line with this company's policy of keeping up-to-date. In other words, the company has always kept abreast of modern developments and in many instances has pioneered in the textile industry by installing new textile and power plant equipment, with many resultant advantages from the standpoint of practical and economical commercial operation. The operation and installation of all mechanical equipment is under the direction of James J. O'Neill, general superintendent.

A brief outline of the changes in the steam generating equipment during the last few years will be of interest. In 1923 an entirely new boiler plant was erected and equipped with three 250-h.p. horizontal return tubular boilers, two of which were provided with coal pulverizers and one with grates for hand firing. Coal is delivered to the boiler room and to the hoppers of the pulverizers by a complete system of coal handling equipment and overhead storage bunkers.

This application of pulverized coal equipment was the first installation of its kind in the textile industry in New England. The coal pulverizers, installed by the Erie City Iron Works, Erie, Penna., were of the unit type, consisting of a fan, blades and paddle chambers, and driven by direct-connected motors. The original burners were of the open end or flare box type. This installation proved to be very efficient and economical, and provided for exceptional continuity of service at high boiler ratings which have been successfully maintained.

In 1927 the pulverizers were converted to the all-paddle type and are still in service. As soon as the Erie City Iron Works developed the vortex furnace burners, they were installed to replace the original burners. In 1929 a fourth horizontal return tubular boiler was installed and equipped with a unit type Erie City pulverizer with the new vortex burner. The furnace under this boiler is the Bigelow-Liptak suspended wall type of boiler setting and has given splendid service, the cost of repairs to it during the last eight years having been negligible. No further changes were made until late in 1936.

In 1936 two of the original horizontal return tubular boilers were replaced by one 500 h.p. three drum water tube boiler. The boiler furnace is equipped with water walls on three sides and is fired from the rear under a water cooled arch by two forced draft burners on a common wind box.



View of modern steam plant at Uxbridge . . .

It is interesting to note that the original pulverizers serve this new boiler unit, but of course a good deal of additional accessory equipment has been installed. This includes a Copes feed water regulator, a Warren centrifugal boiler feed water pump, which is driven by a Whitton turbine, Elliott feed water heater, Vulcan soot blower and Republic meters.

The amount of steam generated is recorded by means of an indicating, recording, and integrating Republic steam flow meter. The coal used is weighed by Richardson automatic scales, one for each pulverizer. These show that this new boiler and furnace operate at from 78 to 81 per cent efficiency. This new unit generates daily about one million pounds of steam at 120 pounds pressure with an average rating of about 260 per cent, but which at times runs up to around 300 per cent.

It is characteristic that the steam load varies greatly from time to time in accordance with the requirements of the dye house and wet finishing departments. This means that adequate measures had to be taken to provide the required flexibility in order to maintain a uniform steam pressure under all load conditions. This condition has been successfully met by the installation of a modern water tube boiler and furnace fired with pulverized coal.

The last two boiler installations at Uxbridge were made under the supervision of Joseph C. Bogue, steam engineer, Boston, Mass.

The Air-Conditioning System at the Jackson Mill of Nashua Mfg. Company

By Charles H. Forsaith, Supt.,
Jackson Mill, Nashua Mfg. Company, Nashua, N. H.

As Told to Francis A. Westbrook

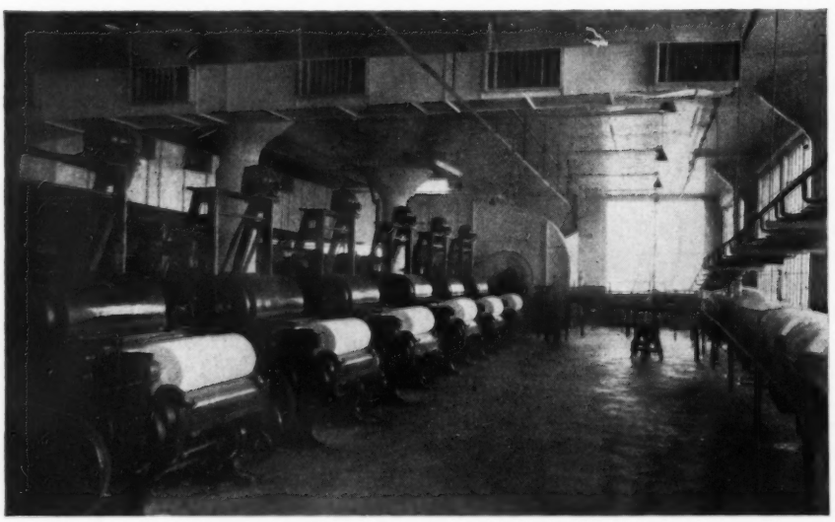
THE JACKSON MILL of the Nashua Manufacturing Company, Nashua, N. H., is fully air-conditioned in the manufacturing departments of the main building, which includes picking, carding and roving, spinning, spooling, warping and weaving. Four individual sets of apparatus have been installed which deliver a total of 663,000 cubic feet of conditioned air per minute to these departments. The system is designed to heat the building to 70 degrees F. when the outside temperature is —10 degrees F. In addition to this, different humidities are provided as required for the different departments, as follows:

6th floor, picking, 50 per cent; 5th floor, carding and roving, 55 per cent; 4th floor, carding and roving, 55 per cent; 3rd floor, spinning, 65 per cent; 2nd floor, spooling, warping and weaving, 80 per cent; 1st floor, weaving, 80 per cent.

The apparatus which takes care of the picker room is located on the 6th floor, and the other three sets are installed in the basement to condition the air for the rest of the mill. The three units in the basement consist of humidifiers with accompanying equipment, as will be explained. Apparatus No. 1 has a capacity of 143,000 c.f.m., its centrifugal pump is driven by a 15-hp. motor, and it is provided with two No. 15 type A conoidal fans driven by 40-hp. motors. Apparatus No. 2, as well as No. 3, has its pump driven by a 25-hp. motor, and two No. 19 type A conoidal fans, each driven by 50-hp. motors. No. 2 and No. 3 each has a capacity of 230,000 c.f.m. Each apparatus is designed to remove 98 per cent of all solid matter in the air, other than smoke, in the washing process.

Each of the three units in the basement consists of a large chamber, enclosed, into which the air is drawn by its fan and forced through the washer and then out through the duct system. The air is drawn from the basement into which air comes partly from outside and partly from the return from upstairs, the proportion of each being automatically controlled by the dewpoint controls at each unit, which actuate the dampers to admit fresh air, return air and pressure relief. This is explained in the following paragraphs. In the meantime, however, it should be explained that the fourth unit is located on the 5th floor and consists only of a fan, without washer, to boost the pressure of one of the units in the basement to supply conditioned air for the picker room on the 6th floor. The reason for this is that if the corresponding blower in the basement were operated at sufficient pressure to take care of the 6th floor without the booster it would make it necessary to have a more complicated set-up on the other floors.

There are three supply risers, one from each apparatus in the basement, and two return risers which are shafts with wire mesh covered entrances at each end of each floor. The basement is used as a plenum for outside and return air. Each of the return ducts has fresh air, return air and relief dampers which are operated automatically from the dewpoint control.

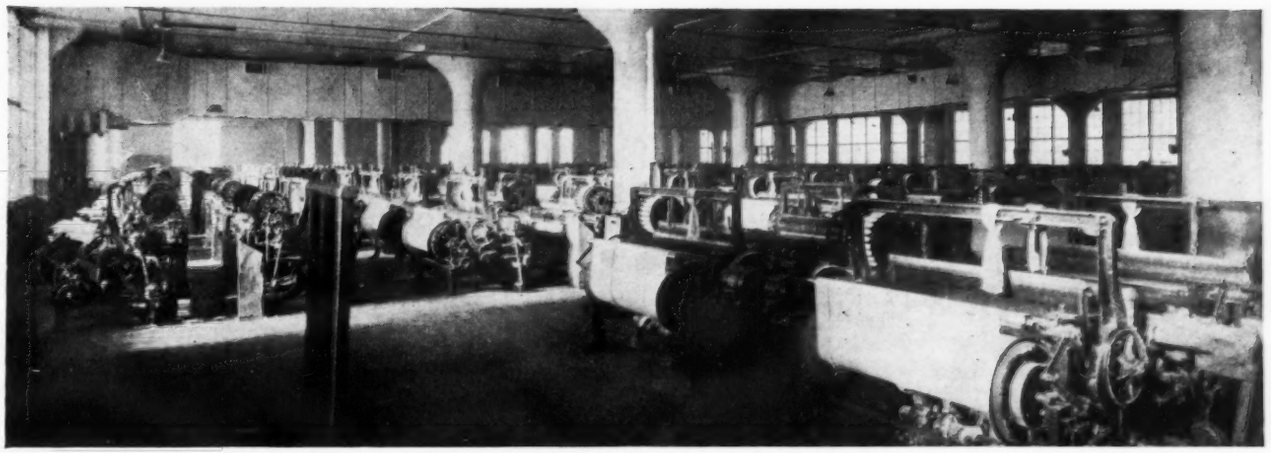


Photos, courtesy Carrier Corporation

5th floor picker room, showing the ducts and, in rear, the booster fan for the 6th floor air supply. Note conveying apparatus for picker laps at extreme right . . . . . .

The dewpoint controls at each apparatus control the heat of the water, and the outside and return air dampers, and consist of the standard Carrier dewpoint control system. Thus each room is controlled with volume dampers and reheaters from thermostats in winter and hygrostats in summer to keep the humidity at the specified points. In the picker room the thermostat controls the steam supply to the heater, and the hygrostat controls the outside and return air dampers.

Steam is distributed to the apparatus at 100 pounds and is reduced to 20 or 30 pounds by Vento heaters. It is further reduced to 5 pounds by a reducing valve at the water heaters.



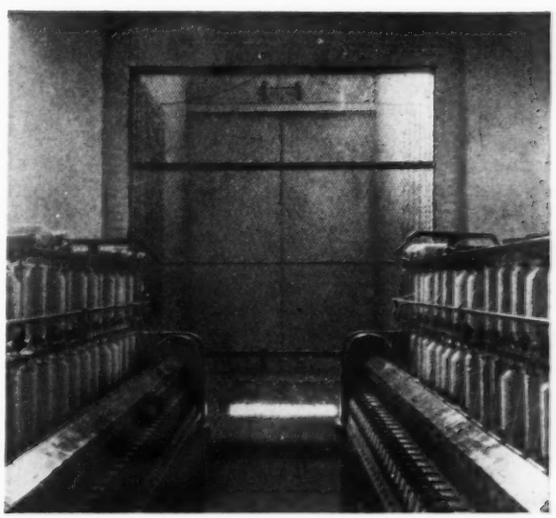
One of the weave rooms at Nashua. Note the ducts on the ceiling and the re-heaters at the extreme left in the illustration . . . . . .

The thermostats and hygrostats for the room controls are so connected that they will change from summer to winter conditions, and vice versa, without hand adjustments. That is, the thermostat probably does most of the controlling in cold weather when artificial heat is required. In that case, also, the air needs additional moisture because of its dryness and the artificial heat inside, and this is automatically controlled by the hygrostat when necessary. In summer, when the humidity is naturally high, the hygrostat is called upon to cause a reduction of humidity. As there are in-between conditions in spring and fall, and other times, when the control changes rapidly from one to the other, this method of connecting the thermostats and hygrostats so that they will change automatically is a great convenience. There are in all 15 controls, one on each of the five floors at each of the three risers.

It is worth noting that in a textile mill such as this the important element is humidity and consequently the control is largely by hygrostats which vary the volume of air admitted to the rooms by volume dampers, and if necessary the admission of steam to the reheater coils. In addition to this the thermostats admit steam to the reheater coils as may be necessary to maintain the predetermined room temperature at a constant level. In this case the hygrostat keeps up the proper humidity by varying the volume of saturated air from the washers to counteract the drying effect of the heated air and the dry outside air of winter.

In summer, particularly, there is a certain amount of "evaporative cooling" which has a desirable effect on working conditions. This cooling results from the evaporation of a certain amount of the spray water at the washers, and also by the expansion of the saturated air as it is delivered to the rooms and becomes mixed with air of less humidity.

The conditioned air goes up from the basement in cement ducts on the outside of the building, which have openings at each floor. Steam coils are located in the ducts at the entrance of each floor, as are also the volume control dampers and extra steam jets to bring up the humidity when necessary. These are controlled as already described. There is also a large



One of the return and outside air ducts. Note dampers on sides of duct . . . . .

fire damper on the room side of the volume control dampers which is equipped with a fusible link. The automatic control instruments for each entrance are mounted on separate instrument panels, the arrangement of which partly localizes the automatic controls for the different floors that carry different humidities.

The air is drawn into each unit from the basement, is conditioned as to washing and in part as to humidity at the washer, travels to the floors above through the concrete ducts, and passes from them into the duct system for each floor. At this point it is heated by the steam coils automatically by means of the thermostat for that section of the floor and given further humidity by the action of the hygrostat on the same instrument panel. The air volume control damper is also automatically actuated from this panel; the local control panel provides the necessary local flexibility. Air is returned through the return risers to the basement through dampers at the bottom of the risers, which control automatic-

(Continued on page 61.)

The Basic Yarn Formula

And the Relation of All Cotton Roving and Yarn Calculations to this Formula

By Horace L. Pratt & G. Emery Nash

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(Article I)

THIS begins a series of articles which explain the use of basic formula in yarn calculations. The purpose of the authors is to show the proper relation of each derivation of the basic formula, without having to refer to a special formula in each instance when weight, length, or count is to be found. Much of this first article is elementary, but it throws some new light on the subject, and also serves as the groundwork for more advanced discussion in following articles.

IN PREPARING THIS TREATISE on roving and yarn calculations the writers are aware that many excellent books and pamphlets have been written on this subject. Even the best of these, however, seem to stress rules for each different calculation, and these rules must be memorized if the problems encountered in the mill, or in the textile class are to be worked. It is the purpose of the writers to try to present, as clearly as possible, the *basic yarn formula*, and to show the relation of *all cotton roving and yarn calculations* to this formula, so that with a working knowledge of the yarn formula, the necessity for memorizing rules for calculating roving and yarn problems will be obviated.

A principle is encountered on practically all cotton manufacturing machines, from the picker to the spinning frame, that when understood will help the beginner to grasp how it is possible to produce a tiny thread, of fairly even weight, from the cotton fibers taken from the tangled, matted, and compressed bale. We refer to *draft*. How this is accomplished and the other objects that are attained by means of draft, are beyond the scope of these articles, but we understand draft to mean the drawing out or the attenuation of the fibers. It is the reduction in bulk or mass of the cotton and is the ratio of weight fed to weight delivered, or of length delivered to length fed. Consequently the strand or mass of cotton fibers becomes finer at each process, the degree of fineness depending upon (1) the size of the strand fed into the machine, (2) doublings, that is the number of strands or ends fed into the machine, (3) and the draft. By controlling these three factors it is possible to produce any desired size, or weight, of thread or yarn, within the range of the machine and the length of the fibers. It is the purpose of these articles to show how the roving and yarn is *numbered*, or *counted*.

In the early days, when spinning was done by hand, the yarn was put up in *skeins*, each 120 yards, and seven of these skeins were placed together to make a *hank*. Therefore a hank was 840 yards. These terms have been handed down and are used as the units of length in our cotton numbering system at the present time. When, by improved spinning methods, it became possible to produce finer yarns, it was customary to weigh the hanks, counting the number that it took to weigh one pound. Thus the yarn, or roving, one hank of which weighed one pound was spoken of as *1-hank* or *1s*. If two hanks were required to weigh one pound the size was *2-hank*, or *2s*. Twenty hanks to the pound was *20-hank*, or *20s*. Cotton, therefore, belongs to the fixed-length group of fibers, the size, or counts, depending upon the number of hanks (840 yards) to the pound. The hank, 840 yards, is therefore the unit of length and the pound, 16 ounces, 7000 grains, is the unit of weight.

Looking at the foregoing, and substituting the word "sample" for an actual number of yards, let us see how the yarn formula is derived:

$$(1)\qquad \frac{\text{Yards in sample}}{\text{Pounds in sample}} = \text{Yards per pound of sample.}$$

$$(2)\qquad \frac{\text{Yards per pound}}{\text{Yards in 1 hank (840)}} = \text{Hanks per pound or unit size (counts)}$$

If the unit of weight used is grains, as it frequently is when sizing roving and yarn, the weight of sample must be converted to pounds thus:

$$(3)\qquad \frac{\text{Grains wt. of sample}}{7000} = \text{Pounds wt. of sample,}$$

Therefore supplying in (1) we have:

$$(4)\qquad \frac{\text{Yards in sample}}{\dfrac{\text{Grains wt. of sample}}{7000}} = \frac{\text{Yards in sample} \times 7000}{\text{Grains wt. of sample}}$$

By inversion and multiplying (this is the method of dividing a fraction into another fraction or into a whole number) we get the results in (4). This now may take the place of (1) in the foregoing and substituted in (2), taking this form:

$$(5)\qquad \frac{\dfrac{\text{Yards in sample} \times 7000}{\text{Grains wt. of sample}}}{\text{Yards in 1 hank (840)}}$$

By inverting, we have:

$$(6)\qquad \frac{\text{Yards in sample} \times 7000}{\text{Grains wt. of sample} \times 840} = \text{Unit size or hanks necessary to equal 1 pound.}$$

*Mr. Pratt is a practical mill man connected with the Shawmut Mill Division of the West Point Manufacturing Company, and Mr. Nash, a graduate of the textile school of the Georgia School of Technology, is connected with the textile high school operated in the Chattahoochee Valley area.—The Editors.

Combining the entire equation and making it equal to 1, we have *the basic yarn formula:*

$$(7)\quad \frac{\text{Yards in sample} \times 7000}{\text{Grains wt. of sample} \times 840 \times \text{unit size, or counts}} = 1$$

For an example let us take a sample of yarn 840 yards of which weighs .10 pound, and substitute the correct figures in each step as given in the derivation of the formula.

$$(1)\quad \frac{840 \text{ yards}}{.10 \text{ lb.}} = 8400 \text{ yds. per pound.}$$

$$(2)\quad \frac{8400 \text{ yds.}}{840 \text{ (yds. in 1 hank)}} = \text{10s unit size or hanks per pound i.e. counts}$$

Had the weight been in grains, the weight would have been 700 grains, so,

$$(3)\quad \frac{700}{7000} = .10 \text{ lb.}$$

Supplying in (1) we have,

$$(4)\quad \frac{\frac{840 \text{ yards}}{700}}{7000} \text{ by inversion } = \frac{840 \times 7000}{700}$$

$$(5)\quad \frac{\frac{840 \text{ yds.} \times 7000 \text{ grs.}}{700}}{840 \text{ (yds. in 1 hank)}}$$

$$(6)\quad \frac{840 \times 7000}{700 \times 840} = 10 \text{ (unit size or counts)}$$

Combining the entire equation, we have the basic formula:

$$(7)\quad \frac{840 \text{ yds. in sample} \times 7000 \text{ grs.}}{\begin{matrix}700 \text{ grs. (wt. of sample)} \times 840 \\ \text{(yds. in 1 hank)} \times 10 \text{ (counts)}\end{matrix}} = 1$$

It should be understood that the unit of weight, appearing in the numerator (above the line) of the formula must in every case be the same unit as the actual weight of the yarn being considered in the problem. The formula was derived with 7000 grains as the unit of weight, but if the weight of the yarn is in ounces then 16 ounces must be used as the unit of weight, while if the weight is in pounds then use one pound as the unit.

In order to fix this formula in one's mind,

length and the unit of weight

should always be thought of as being above the line in the formula, while

actual weight, 840 yards (the hank) and counts

appear below the line. The hank and the unit of weight will always be known and by knowing any two of the three remaining elements, the other element can be found. Practically all problems involving roving and yarn calculations in the mill consist of finding *one* of *three* elements that comprises the formula, viz., counts, weight or length. Usually the element wanted will be counts, yet numerous problems will be encountered involving the finding of weight or length. For example it may be necessary to find how many yards of a certain yarn are contained on a spool or bobbin, the weight and counts of which are known; or on the other hand the number of ends, length and counts of yarn on a loom beam may be known and it may be necessary to determine the weight, but facilities for weighing the beam may not be readily available. In the first case it is only necessary to substitute "y" for the length element in the formula, as both the weight and counts are known, and solve. In the case of the yarn on the beam, substitute "y" for the weight element. Illustrations of both these problems will be shown later.

Tables for finding the counts of all the more common sizes of roving and yarn are available. Tables for converting sliver weights into comparable roving counts may also be had. Every overseer, whose duties include the calculation of roving or yarn counts, should have these tables for ready reference. It will be found, however, that occasions will arise when something more than the tables will be needed, so it is here that familiarity with the yarn formula will be advantageous.

Following are some examples illustrating how the yarn formula may be used in solving actual problems in the mill: What is the net weight, in pounds, of a spool of 20s yarn containing 27,000 yards?

Remember that the letter "y" represents the unknown weight, so by substitution in formula, we get:

$$\frac{27{,}000 \text{ yds.} \times 1 \text{ lb. (unit of weight)}}{\text{"y" lbs.} \times 840 \times 20\text{s}}$$

It will be noted that as the weight is desired to be in pounds, the unit of weight, in the numerator of the formula, will be 1 pound. And since actual weight of the 27,000 yards of 20s yarn is the element that must be found, then "y" is substituted for actual weight, therefore,

$$y = \frac{27000 \text{ yds.} \times 1 \text{ lb.}}{840 \times 20\text{s}}$$

$$y = 1.607 \text{ pounds.}$$

2. What is the weight, in ounces, of 1800 yards of .65-hank slubber roving? (Note here the weight of the material is given in ounces and therefore the pound unit must be in the number of ounces equivalent to one pound.) Also it is well to remind the beginner that *hank roving* and *counts* mean exactly the same thing. 1s yarn and 1-hank roving weigh the same, i.e., 840 yards weigh 1 pound. Substituting in the formula the known elements, and "y" for the unknown element, weight, we have:

$$\frac{1800 \text{ yds.} \times 16 \text{ ounces (unit of weight)}}{\text{(y) ounces} \times 840 \times .65 \text{ H.R.}}$$

Solving for y,

$$y = \frac{1800 \text{ yds.} \times 16 \text{ oz.}}{840 \times .65 \text{ H.R.}}$$

$$y = 52.75 \text{ ounces}$$

3. 120 yards of a certain yarn weigh 75 grains. What are the counts?

In this problem, of course, 7000 grains will be the unit of weight.

$$\frac{120 \text{ yards} \times 7000 \text{ grains}}{75 \text{ grs.} \times 840 \times \text{(y) counts (the unknown element)}}$$

Solving for y,

$$y = \frac{120 \text{ yards} \times 7000 \text{ grains}}{75 \text{ grs.} \times 840}$$

$$y = 13.33\text{s (Counts of sample of yarn)}$$

4. What is the weight, in grains, of 12 yards of 1.50-hank roving?

$$\frac{12 \text{ yards} \times 7000 \text{ grains}}{(y) \text{ grains} \times 840 \times 1.50 \text{ H.R.}}$$

$$y = \frac{12 \times 7000}{840 \times 1.50}$$

$$y = 66.67 \text{ grains.}$$

5. A bobbin of yarn from a spinning frame sizes 32s and weighs 5 ounces, net. What is the length?

Substituting "y" for the length element and using 16 ounces as the unit of weight in the numerator of our equation we have,

$$\frac{y \text{ yards} \times 16 \text{ ounces}}{5 \text{ ounces} \times 840 \times 32s}$$

(When the unknown appears in the numerator of an equation, and when in solving it is carried to the other side of the equal sign, the equation must be inverted.) We thus have,

$$y = \frac{5 \text{ oz.} \times 840 \times 32s}{16 \text{ oz.}}$$

$$y = 8400 \text{ yards.}$$

6. It has been found that a bobbin from an intermediate frame weighs 2.7 pounds net. How many yards of 1.35-hank roving will this amount to?

Setting up equation as in problem (5) we have (except the unit of weight, which will be 1 pound),

$$\frac{y \text{ yards} \times 1 \text{ pound}}{2.7 \text{ pounds} \times 840 \times 1.35 \text{ H.R.}}$$

Solving for y,

$$y = \frac{2.7 \text{ pounds} \times 840 \times 1.35 \text{ H.R.}}{1 \text{ pound}}$$

$$y = 3{,}061.8 \text{ yards.}$$

The foregoing problems have been worked out in detail to show the use of the formula in solving for the three elements, counts, weight and length. More complicated examples will be given in subsequent articles involving yarn on beams and ply yarns, yet it will be found that by using the yarn formula these problems become simple and, therefore, may be worked with ease.

In the mill it is common practice, when determining counts, to reel 12 yards of roving and 120 yards of yarn (when dealing with very heavy yarns possibly only 60 yards would be reeled.) Sometimes it is necessary to find the counts of short pieces of roving or yarn. The process figuring counts, using 1 yard, 12 yards and 120 yards as bases, has been shortened by the use of *constants*. How these constants are derived from the yarn formula, and how they may be used to shorten the work of roving and yarn calculations will be explained in the next article in this series.

"My Private Secretary",

by F. Gordon Cobb

A LONG-FELT NEED of practically all textile executives and supervisors is filled in a new book, "My Private Secretary", just produced by W. R. C. Smith Publishing Co., Atlanta, Ga., publishers of COTTON. This new book, compiled by F. Gordon Cobb, contains a comprehensive set of mill calculations, constants, tables, etc., for which the mill man will find constant use, but its unique and striking feature is a section of forms, so designed that, when filled in by the user, will provide, in one pocket-size volume, a complete record of a man's mill or department, so that he can readily answer practically any question about his job.

Practically all textile men have much useful information which they wish to record, but, too frequently, one memorandum is left at the desk, another is at home, others cannot be located. "My Private Secretary" was designed to provide in one handy volume all of this desirable information, along with useful rules, tables, etc. The specially-prepared forms are so designed that comparable records of several plants may be recorded, or these spaces used to indicate changes from one year to the next for a single plant.

Among the rules and information which the book, filled in, will contain, are the following:

1. The draft of any machine in the mill.
2. Specifications on each style of goods woven by the mill, including contraction, etc.
3. An easy way to figure all drafts for every machine.
4. A short method for obtaining the production of any machine in the mill.
5. The speed of any machine or part of any machine, such as r.p.m. of beaters, r.p.m. of card cylinders, card doffers, r.p.m. of front rolls, spindles, loom speeds, etc.
6. The twist gear, draft gear or lay gear on any machine.
7. How much roving or yarn there is on any bobbin, spool or beam.
8. The specifications of the different machines, such as the number of spindles and gauge, kind of machine, weight of product, etc.
9. The standard and actual twist, lays per inch, production, and weight of all yarns compared.
10. A simple method of obtaining the actual number of yarns needed to produce a style of goods.
11. A quick method of getting loom production.
12. A quick method of getting spinning production, or hanks.
13. A quick method of getting speeder, intermediate or slubber production.
14. How to calculate the yarn space in reeds.
15. All information necessary to take stock.
16. A blank space to be filled in for the rate of pay of operatives.
17. A space to be filled in for the total dollars any department should spend per week.
18. A blank space to be filled in for all card and picker settings.
19. A blank space to be filled in for all settings of machines, such as distance from bite to bite of fly frame rolls, spinning rolls, etc.

The book, in a durable cover, printed in gold, contains 112 pages. It is 4x7 inches, and fits readily into a coat or trouser pocket.

The Why and Wherefore of FABRIC DESIGNING

By T. O. Ott, Jr.

(Article 4)

THIS article is the fourth installment of a series on designing, written especially for COTTON by Mr. Ott. The series covers the fundamental principles of designing, and in no way attempts to release specialty fabrics for production purposes . . . .

IN ORDER TO INTERPRET properly fabric possibilities in his mill the designer should have a complete knowledge of fabrics, as to construction, texture, weave and design. Having a working knowledge of the range and limitations of the mill machinery as to the manufacture of yarns and fabrics, there are few problems that he cannot solve satisfactorily. Very often the knowledge and experience of the designer both as to weaving and designing will save the mill a lot of costly experimenting. The designer should act as a sort of censor when the mill is likely to get into trouble by over-enthusiastic sales and customers demanding the impossible or unprofitable. This has been especially true for the past several years because many mills are willing to try anything to keep running; on the other hand, perhaps the fabric that is presented may by some modification be adapted to the mill machinery or made more weavable by a few changes in yarns or construction.

For the beginner a clear and easily remembered classification of constructions, weaves and designs is essential. For the more experienced designer this article will serve to refresh his memory on some of the fundamentals. Since so many classifications exist the writer felt the need of making one of his own consisting of the essentials and allowing the novel and exceptional to come into the discussion only when necessary. This outline is offered for those who need it.

Classification of Fabric Constructions

1. *One warp and one filling* is the simplest of all constructions for fabrics. However, the possibilities of variety in yarns, weaves, sley, and pick make the combinations unlimited to the designer. Nearly all the staple fabrics such as sheetings, drills, canvas, duck, suitings, dress goods and many others fall under this classification. In fact many goods termed fancies have this construction.

For the staple fabrics it is necessary to conform to certain specifications required by the trade handling these goods. The requirements of such fabrics are more of a routine mill problem rather than a designing problem. To the designer the chief interest is in the yarns and color combinations.

2. *Extra warp combinations* present a most interesting field to the man who wishes to obtain great variety of color and design with comparatively simple yarns. Of course, as with all things, there is a number of exceptions and we find unusual treatments of yarns and colors in such fabrics. Some of the extra warp fabrics generally seen are automobile seat covers, slip cover material, upholstery, draperies, suitings, and dress goods. Here the designer will find that a great variety of patterns may be obtained on the same warp and loom set-up. By a simple change of chain draft an almost unlimited number of pleasing effects may be obtained. These fabrics are especially adaptable to the mill that has single shuttle looms. Usually a dobby is required to obtain the full possibilities of such a fabric.

3. *Extra filling combinations* present about the same possibilities as do extra warp combinations except that the embellishment is obtained from the filling instead of the extra warp. Here also the number of different yarns or colors are limited to the boxes on the loom while in extra warp fabrics an almost unlimited range for coloring is offered up to the number of ends in the figuring warp. One advantage of using such constructions is that soft yarns and novelty yarns may be introduced that cannot be so readily used in the warp where the friction of the harness and reed chafe the yarn. Some fabrics that make use of this method of weaving are upholstery, drapery, suiting, dress goods, heavy coat material, and many fabrics that have an extra filling added to give body or to cheapen a fabric by using less expensive yarns at the back. The extra filling may also be of the same quality and size as the other but may be added for the color effect.

4. *Multi or ply fabric combinations* cover a variety of fabrics such as brake lining, fire hose, laundry press cloth, tapestry and upholstery, overcoating, belting, blankets, etc. The chief characteristic of all such fabrics is thickness, weight or strength, and toughness necessary to meet the requirements of the use to which the fabric is put. Here by special interlacing of one or more warps or one or more fillings the desired effect is obtained.

5. *Leno fabrics* are here taken as a class of fabrics whereas in reality they form a separate branch of weaving due to the necessity of a special technique and special equipment in obtaining the weave. The

The first article appeared on page 56 of the January 1938 issue and covered the scope of the designer and the sample in process for which there was no original sample fabric; the second article appeared on page 64 of the March issue and took up the essential steps in reproducing a sample fabric and in calculating cost of production; the third article, on page 55 of the June issue, was devoted to a study of the basic weaves, their classification and uses in different fabrics.

methods of indicating the weaves and entering the drafts also require a special technique. Many fancy effects are obtainable in the leno constructions. A large variety of fabrics such as fruit bagging, laundry and dye bags, shoe fabrics, glass curtains, and draperies are made with leno weaves.

6. *Warp pile fabrics* form another large class of fabrics that are well grouped to themselves. The chief characteristic is a pronounced looped appearance on uncut piles, on cut piles the appearance is that of a tufted fabric. Usually the loops forming the pile for the cut or the uncut pile are formed by a special loom wherein a metal wire of definite shape is woven under the pile warp just before it is stitched into the ground warp. The construction of such fabrics is very similar to extra warp fabrics in that an extra warp is woven on a ground fabrics, usually a plain fabric, to get the effect. The chief difference is in the effect desired and the loom used to obtain that effect. For the more expensive fabrics such as mohair piles, velvets, frezettes, etc., the extra warp is of the more costly material, the ground fabrics being of cheap material. In other warp pile fabrics such as toweling and terry cloth where the loops are formed by a loose reed on the loom, about the same quality of material is used throughout.

7. *Weft pile fabrics* present very much the same appearance on the surface as the warp pile fabrics do. However these fabrics are produced in a very different manner because the tufts are formed by cutting the long floats of filling that are woven on the surface. These fabrics necessarily have a high pick in order to have enough picks to form a thick uniform pile. Some of the fabrics under this classification are corduroys, velveteens, beaverteens, and others.

Apart from the characteristic weaves used in the construction of fabrics we may form a classification of patterns on fabrics purely from the standpoint of design. Thus a pattern may be characteristic whether it is on a piece of cloth or on a Grecian vase or some primitive carving. By being able to recognize the salient features of a design pattern and its derivation or origin the designer is able to picture mentally many interesting designs from objects about him. To prove this I have found that many times the best designs to transmit to fabrics are those on furniture and cabinet work or metal and leather craft and other familiar objects, common enough but not often thought of as sources of good designs for fabrics.

Classification of Design Figures

To be exact, design figures may be broken down into several large classes for the sake of ready reference. However a design may be a composite of all the classes given in the following paragraphs or of any two.

1. *Nature patterns* are based on the nature forms that are of interest or that can be made of interest. Inasmuch as we are considering design only in relation to fabrics, our designs must be adapted to being reproduced on cloth in the constructions previously considered. In print cloths such as chintz, dress goods, etc., the most intricate patterns may be represented in the desired form and color as the design is only limited by the printing process used. In damasks the pattern is sometimes devoid of color, as in table cloths, while in drapery and upholstery fabrics color is introduced along with the weave. Floral patterns

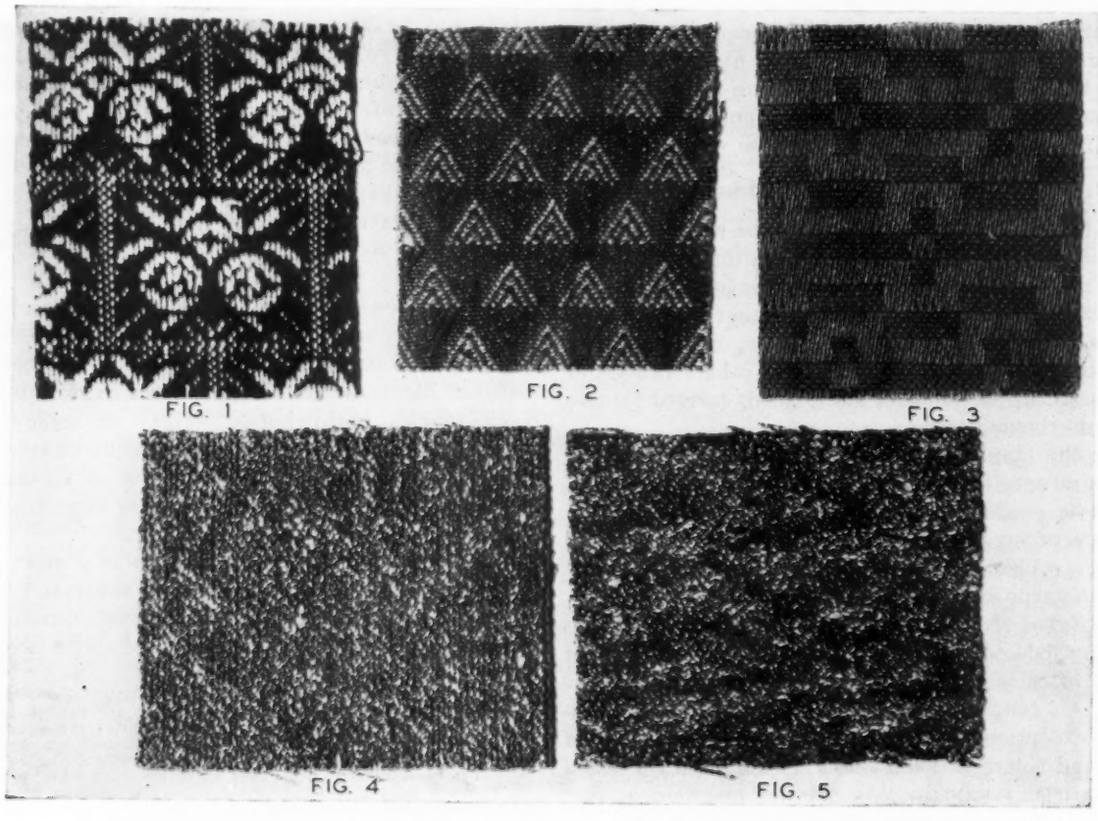

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

are usually reproduced better with the use of a Jacquard loom due to the necessity of a wide choice of detail in the weaving. Such patterns may be produced on a dobby but the tendency of a dobby is to restrict such effects. Fig. 1 shows a rose pattern produced in an extra warp construction. The roses are arranged to conform to the limits of the dobby as well as being arranged to give the most interest.

2. *Geometric patterns* are the next large class of design patterns that must be considered. Although many geometric forms are found in nature, many are not, and a separate class must be considered for them. The basis of geometric patterns is the regular forms of geometry such as the straight line, the triangle, the square, the parallelogram, the polygon, the circle, etc. These forms are more readily adapted to the use of the dobby designer and may be made very interesting with the use of a little ingenuity. In weaving such designs, care must be exercised to avoid the awkward repetition of geometric figures. Two simple designs illustrated in Fig. 2 and Fig. 3 show the possibilities of such figures. Fig. 2 is a design employing the triangle and Fig. 3 combines the parallelogram and square.

3. Other patterns may be a combination of the two foregoing classes and in addition be a textured pattern as well. The texture effects come from the combinations of different fibers and yarns to give a surface appearance that is novel and pleasing. Small weaves of a neat or indefinite character may add to the textured effects. All other weaves and heavy novelty yarns also add much to the textured appearance of a piece of cloth. Fig. 4 is a textured fabric with an indefinite weave. Ratine yarns give a pronounced texture.

4. In addition it may be stated that all fabrics have some characteristic appearance due to texture that may be subdued or accentuated as desired to give background to various figured designs. Therefore in the last analysis a weave may be textured and figured with a naturalistic or geometric design or a combination of both as called for. Fig. 5 is a combination of design and texture, all over dobby figure, the texture is from ratine yarns and weave.

Mill Management Notes

How Do You Manage Men?

A man who has worked in textile mills in Europe, as well as in the mills in America, states that there have come under his observation three methods of managing, or mis-managing, men. He calls these: the strong master method, the sarcasm method, and the democratic method. In Europe, he said, the "master" rules with an oath and a pounding of his desk or a fist to the face. In the eastern United States he experienced a somewhat milder form of this, and also and especially the slurring reproach. In the South, he said, he was finding the method to be that of "helping the other fellow along." He called it "the more democratic way."

Everybody has his off-days. Even the best-natured worker, or the most even-temperated overseer, may sometimes "fly off the handle". One offense of this kind, in a well-managed mill, is not enough to cause a man to lose his job. A certain successful manager, when some worker had been reported guilty of backtalk, answered with the question: "Did Jesus let them kill a woman for one sin?"

A Valuable Purchase Record

Purchases of materials and supplies are recorded quickly and easily in a card-index file. This also is probably the quickest and easiest reference file for assistance in purchasing. A card record of this kind, carefully classified as to commodities, also lends itself to giving, in a few minutes, the total purchases of any commodity over a given period, so that the buyer can tell the suppliers what the volume of requirements is likely to be, and gain price advantages for quantity contracts.

The recording cannot be safely left to a clerk who is not technically trained in mill processes and the uses of various materials. Such a clerk will fill up the cards with unnecessary detail, and will not judge correctly the proper cards for many of the entries.

Also, in a vertical letter file, the purchasing agent should have duplicates of the invoices, alphabetically by suppliers' names, so that details not on the purchase record cards can be found quickly there.

Paying Wages in Coin

To pay several hundred employees weekly with checks is good business, since the check is a receipt and the bank is responsible for paying the right person.

Yet in some cases the check system is not the best one. The worker prefers the coin. It is less trouble to him. If his pay is in a check and he fails to get to the bank on time, he must ask a merchant to accommodate him, and that sometimes requires a purchase.

At one cotton mill, about a half a million dollars in wages was passed out in currency and coin with only a single error in delivery. In that case a negro worker received the wrong envelope, and, though it contained more money than his, he brought it to the office for adjustment.

The ideal method of distributing pay is through a pay-roll protection bonded company that takes the employer's check for the entire amount, along with the employer's envelopes, has the bank put the money into the envelopes, and then delivers them, by armed guards, to the workers, inside the mill. The envelopes are printed with attached carbon slip. Both show the deductions, in detail. The workers are given the car-

bon slips, in advance of the pay hour. They sign these, and exchange them for the pay envelopes.

Controlling the Power Cost

In a mill that buys its electric power, and makes steam only for heating, the chief qualification for a master mechanic is education and experience in electrical principles and values, and in maintenance. Steam experience is secondary. A good man for this job knows power factors and efficiencies, as well as lubrication and transmission. He knows, also, machining, gear cutting, carpentry, and pipe work. But for these jobs he can hire good mechanics.

The big job is to control the consumption of current. For a 50,000-spindle mill the cost of current is from $75,000 to $100,000 a year. One per cent saving might more than offset the difference in salaries between a man who knows where the losses are to be found and one who doesn't.

Better Design of Coal Storage

There is a new modern cotton mill that uses 20 cars of coal a year and has storage capacity for only three cars. It is in the country, too, on cheap land. This mill cannot stock up with coal during the low-price summer months, but has to pay about $400 a season more for its winter supply, bought during the winter at the highest prices of the year.

The mistake is one of design. A few yards more of trestle and of concrete floor, at perhaps $800 cost. would probably pay for itself in two years.

Protecting a Business Good Name

It isn't enough for a person to be decent while on his job. Henry Ford went so far as to inquire into the home-life of his employees, and their conduct in public. There followed protests about "personal liberty". But Mr. Ford carried on.

As trained workers become more plentiful, it will all the time become less easy for a person who acts disgracefully in public, or even at home, to get a job or to hold one with any company of established reputation. Bad conduct of an employee reflects on the good name of the employing establishment. No company with a fair name can afford to have it soiled by bad men.

Adding to the Cost

A successful mill manager declares that it is foolish to discharge an employee for making one mistake, however serious the mistake may be. He remarked that the next man, probably, would make the same mistake. or a similar one, unless warned. Besides, there is the extra cost of breaking in the new man.

On Safety Education and Accident Prevention, by Claudius Murchison, president, The Cotton-Textile Institute:

"At the tender age of 15½ and for good and sufficient reasons which were not unique in those days, I gave up school temporarily and took employment as a manual laborer in the machine room of a newly-built furniture factory. In order to avoid any libel on my state I will say that all of this happened over 30 years ago. Nero would gladly have swapped his prize den of lions for that machine room any time. It could easily have set a new high record in the mangling of Christian martyrs.

"There was in the entire plant not a single machine guard or any form of protective device whatever. The belt came up from the drive shaft below through yawning chasms in the floor. Other belts attached to overhead shafts continually whizzed in our faces. All moving machinery parts and pulleys were fully exposed. Whirling saws and blades snarled at one from every direction. Giant rollers were reaching for your hands and feet to grind them into sausage. Flying ends of broken belts gave spice to the day's work particularly if they happened to wham one of the operators on the rear. There was not a suction pipe anywhere. All shavings and sawdust were spouted forth into God's pure air. Consequently, the visability was poor. The fellow who acted as tailer for the planing machine disappeared altogether. Board ends, shavings and sawdust accumulated on the floor until they were swept up during the noon hour and after the day was over. * * *

"One day while feeding boards into the planer the dust must have been unusually bad because I accidentally pushed a board into the spokes of the drive pulley. The effect was highly explosive. Slugs of cast-iron flew in all directions and buried themselves in the walls or crashed through the windows. Nobody was actually hit, but a number felt the wind. The older fellows looked worried, the younger fellows laughed. As for me, I was scared, thinking I would be fired because the superintendent said the pulley was worth $2.50.

"During my period of action on this miniature battle-field something over 30 years ago, I did not once hear any reference to danger. Men did not think in terms of risk. The loss of a finger produced scarcely more than a little curiosity and a sympathetic umph. A lung full of sawdust produced nothing more than a cough and nobody gave it a second thought. The general manager and plant superintendent were kindly, big-hearted men and loved their employees.

"I have not told this story for the purpose merely of describing working conditions as I once knew them, but rather to reveal the state of mind which a group of workers will have toward danger if left entirely to their own thinking. It seems to be, therefore, that the first step in employer-employee co-operation in the prevention of accidents should be the development of a common understanding and appreciation of the meaning and significance of safety. An occasional lecture graphically illustrated, a periodical group discussion, well prepared reading materials would seem invaluable in the formulation of a correct mental attitude toward safety."

From an address at the ninth annual Safety Conference. Asheville, N. C., June 10, 1938.

World's 1937 Rayon Production Again Establishes a Record

Japan Leads All Countries with Output of 509,000,000 Pounds—Germany Second and United States Third

THE WORLD'S production of rayon yarn and staple fiber in 1937 again broke all records with an output of 1,808,740,000 pounds compared with a production of 1,319,075,000 pounds in 1936, according to figures compiled by the *Rayon Organon*, published by the Textile Economics Bureau, Inc. The gain in production as compared with 1936 amounted to 37 per cent.

As was the case in 1936, Japan again led the world in total output in 1937. Germany for the first time in the history of the industry moved up to second place from the standpoint of output. As a result of the sharp gains in production reported by Japan and Germany last year, the United States, which held world leadership from 1919 to 1935, fell back to third place among the leading producers last year.

The world's production of filament rayon yarn amounted to 1,185,820,000 pounds in 1937, a new record, and a gain of 16 per cent compared with output of 1,021,015,000 pounds in 1936. The increases in yarn production by countries was fairly uniform, the greatest poundage increases being reported by Japan, United States, Germany and Italy.

Notable Increase in Staple Fiber

The most significant feature of rayon's 1937 performance was the substantial increase of 107 per cent in staple fiber production, the 1937 output being 622,920,000 pounds as compared with a 1936 total of 298,060,000 pounds. In 1929 the output of this product was only 8,000,000 pounds. Germany's output of this product last year amounted to 220,000,000 pounds, Japan's 174,755,000 and Italy's 156,350,000.

Production of rayon yarn and staple fiber by countries for 1937, 1936 and 1929 follow (last 000 omitted):

	1937	1936	1929
United States	332,335	289,925	121,900
Japan	509,105	320,845	27,000
Germany	345,000	193,580	60,785
Italy	262,900	196,100	73,000
Great Britain	152,420	142,970	55,300
France	77,700	65,900	41,800
Netherlands	23,920	22,050	17,600
Belgium	17,200	14,200	13,400
Canada	16,500	13,625	3,685
Poland	15,990	12,490	5,850
Russia	15,425	13,000	660
All Others	40,245	34,390	21,415
TOTAL	1,808,740	1,319,075	442,395

The above figures show that Germany, Italy and Japan increased their combined share of the world's rayon production in both the staple fiber and the filament yarn categories. "Outstanding," states the *Organon*, "is the great increase in their total share of staple fiber production, which comprised 88 per cent of the world total by 1937. This increase becomes more understandable when it is realized that each of these countries has its foreign exchange difficulties and that each one lacks sufficient domestic supplies of cotton and wool. Thus there is the intense drive by these countries for economic self-sufficiency."

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Textile Machinery Show in England

Much new textile machinery will be on view for the first time at the "Textile Recorder" Machinery & Accessories Exhibition at Belle Vue, Manchester, England, October 12 to 22, according to announcement. Exhibitors of international standing will show the latest machinery representative of every section of the spinning, weaving, and dyeing and finishing trades.

The rayon and silk trades will see, among other things, fancy yarn doublers, rayon and silk twisting and throwing machines, automatic and semi-automatic pirn winders and cone winders, and automatic looms for cotton, woolen, worsted and rayon and silk fabrics, as well as supplementary mechanisms and accessories.

Dobbies equipped with variable dwell mechanisms, paper-roll control and automatic pick finders and reversing motions are among the auxiliary loom attachments among the proposed exhibits, which will also include braiding machines, multi-shuttled and high-speed ribbon looms, a new design of jig tenter, testing apparatus and scientific instruments and general machinery and equipment.

The exhibition management's information also includes this unique announcement: "Finally, striking that sinister note, from which it seems difficult to escape in these days, there will be shown examples of air raid precaution equipment for textile factories."

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New Products by Ciba

Ciba Company, Inc., Box 25, Station C, New York City, has announced several notices regarding new products made by its principals, the Society of Chemical Industry, Basle, Switzerland. Circular 472 describes cloth fast Brilliant Blue R, in the series of cloth-fast colors, recommended for fast knitting yarns. Circular 475 on Rigan Sky Blues 2G and 4G, for viscose rayon of unequal affinity. Circular 478 describing Kiton Fast Red BGLE, useful as a self-color and in combination with other easy-leveling fast acid colors. Sample Card 1509 on Rosanthrene and Diazo colors which reserve acetate rayon, recommended for all fabrics containing small effects of acetate rayon. Sample Cards 1510, 1510a, and 1511 on Chlorantine Fast Colors; shows mercerized cotton, ordinary cotton, and viscose rayon. Sample Card 1522 gives hosiery shades on wool-viscose and half-wool plaited knit goods. Sample Card 1544 shows the Polycete Fast Colors adapted for dyeing combination rayon goods. Sample Card 1590 describes the new types of Cibanone Brilliant Green.

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AATCC Outing on Lookout Mountain August 5-6

The annual summer outing of the South Central Section of the American Association of Textile Chemists and Colorists will be held at the Lookout Mountain Hotel, near Chattanooga, Tenn., on August 5 and 6. Members of this section, and of the Southeastern and Piedmont sections, will be invited to attend, as well as others interested in dyeing and finishing of textiles, including dyers, finishers, chemists, purchasing agents, and mill executives, and salesmen. Robert Covington, Arden Avenue, Chattanooga, Tenn., is chairman for the outing, and George W. Searell, P. O. Box 564, Chattanooga, is secretary of the committee.

An English Viewpoint on Causes of Blackening Filling in Weaving

By Stephen Major

THE BLACKENING or marking of filling during the weaving process is a defect which all loom fixers are confronted with from time to time. These marks are sometimes caused by simple and fairly obvious faults, such as oil splashing on the filling from excessively oiled and loose spindles, dirty filling forks and filling fork grids, very oily pickers, dirty and oily shuttles, etc., which are fairly easy to rectify. At other times, however, the marks are caused by the faulty operation of the loom, particularly as regards the traverse of the shuttle, and in such cases it is often very difficult to effect a remedy. It is proposed, therefore, to deal solely with the latter type of filling marking in this article.

The filling is blackened or marked due to its being caught or pressed between the outside of the shuttle and the face of the shuttle box, and this is caused by various defects of the loom which will be dealt with later. The extent of the soiling depends on the length of the filling that is trapped, the amount of pressure exerted on the filling and the condition of the shuttle and the shuttle box. The marks may, therefore, be slight or more pronounced, and may vary in length from quite small specks to approximately an inch, or even an inch and a half. They usually appear in the fabric at regular and frequent intervals along its length and at the side nearest to the battery end of the loom. They are situated near to the battery side selvage owing to the fact that the shuttle eye traverses almost the full length of the battery side shuttle box and, therefore, carries the filling with it. On the other hand the shuttle eye remains near the entrance end of the left-hand shuttle box when the shuttle is completely boxed, and thus the filling does not travel more than a short distance along this box. It will be evident, therefore, that filling marking invariably takes place in the battery end shuttle box.

THE AUTHOR of this article is an accepted British textile authority. He has written this discussion based on practices and methods in English mills. It will be of interest to American mill men and of assistance to those in cotton and rayon weaving mills that have experienced the difficulty under discussion . . . . . .

When filling marking occurs, it is advisable in the first place to measure the distance from the center of the marks to the nearest selvage in order to ascertain the approximate position in the shuttle box where the marking is taking place. The distance from the selvage at the fell of the cloth to the point on the box front where the marking occurs, measured along the path of the filling and with the lay in the position that it occupies when the shuttle enters the box, will correspond to the distance from the marks in the cloth to the cloth selvage. This point on the box front can then be carefully examined and if defective or dirty, the necessary remedy can be applied.

It is essential, if filling marking is to be prevented or rectified, that the shuttle boxes be perfectly clean and that the filling grooves in the box fronts and the shuttles be of ample depth to accommodate the yarn. The grooves should also be in exact alignment longitudinally and the same distance from the bottom of the shuttle and the base of the shuttle box. It is usual for the face of the box front to become worn along the part directly opposite to the shuttle box "swell," due to the continual pressure of the shuttle at this point, and this causes the groove in the front of the box to become too shallow and if not attended to, to be worn away.

Defects such as these are a fairly frequent cause of the filling yarn getting nipped between the front of the shuttle and the box front and consequently blackened. To remedy this defect the box front should be taken from the loom, the face planed straight and the filling groove planed to its original depth. If the box front is not thick enough to allow for this treatment, a new box front should be substituted. If the groove in the front of the shuttle is not deep enough to accommodate the filling, it can easily be deepened by means of a small round file. Care should also be taken that the face of the box front and the front of the shuttle are at right angles to the base of the shuttle box and the bottom of the shuttle, respectively.

Another cause of filling marking is the shuttle peg or pin rubbing against the front of the box, occasionally trapping the filling between the two rubbing surfaces.

If the filling unwinds too freely from the shuttle, the slack portion will be liable to come out of the grooves in the shuttle and the box front and get pressed between the flat surfaces of the shuttle and the box front. This is a common cause of filling marking and results from harsh or strong picking action from the lever end of the loom, bad checking of the shuttle at the battery end box, and insufficient tensioning of the filling at the shuttle. The picking motion should be set and timed correctly according to the type of fabric being woven and the minimum impetus given to the shuttle which will send it across the lay in the time available. The shuttle should be

checked with a smooth yet precise action, care being taken that the check strap, or other means, is adjusted so that the shuttle is not brought to rest by a sudden impact with the picker. Care should also be taken that pressure from the box "swell" is suitable in every way and that the shuttle box is correctly adjusted to the size of the shuttle. The most suitable method of filling tensioning at the shuttle will, of course, vary according to the type of filling used and the kind of filling package. For ordinary cotton pin cops, a small piece of flannel glued to the inside of the shuttle, close to the shuttle eye, will, in most cases, apply sufficient tension to the filling. For rayon filling it might be necessary to glue pieces of rabbit fur along the inside of the shuttle and also insert a tuft of soft worsted yarn in the shuttle eye. The rabbit fur will prevent the filling from "ballooning" excessively as it leaves the pirn (quill), and thus the liability of slack filling touching the buffer on the spindle and marking it, will be avoided.

A badly running shuttle will increase filling marking, as such a shuttle will be liable to enter the shuttle box in an incorrect or erratic manner. This fault is brought about by many causes, although these may conveniently be grouped under three headings, viz, faulty shuttles, an erratic throw of the shuttle and the deflection of the shuttle after it has been ejected from the shuttle box. If the shuttle is worn boat-shaped at the bottom, if it is lighter or smaller than the other shuttle or shuttles in the set, or if it is defective in some other way, it might rise in the shuttle box, and result in the filling getting trapped between the face of the shuttle and some part of the shuttle box. This would, of course, be sufficient to cause filling marks in the cloth. An erratic throw of the shuttle is usually the result of wrong setting of one or more of the various parts of the lay and lay fittings at the shuttle boxes. The setting of the picker, the spindle, the shuttle guide, the "swell," the width of the shuttle box, the setting of the box back at the correct angle with the bottom of the box and also its alignment with the reed, all play an important part in the traverse of the shuttle and must be attended to if an erratic throw of the shuttle is to be avoided. Care must also be taken that the shuttle raceplate is in good order, true to temple and that the shuttle has a clear track along which to travel. The warp shed should allow a clear passage for the shuttle, care being taken that the bottom line of the shed rests lightly on the race board when the shuttle is passing across the sley. It has been truly said that the secret of efficient weaving is the realization of the value of a true running shuttle. It is also true to say that a correctly running shuttle will do much towards keeping filling marking well within reasonable limits.

When filling marking occurs it is a common practice among weavers to place French chalk in the battery end shuttle box. This practice should not be allowed to continue, for although it may prove beneficial by stopping the marking, its effect is only temporary and when the chalk has become soiled, the marking of the filling will be resumed and in all probability will be worse than in the first before. A better method of stopping filling marking, when all efforts at finding or remedying the cause of the trouble have been in vain, is to fix a piece of clean fabric along the full length and full depth of the battery end box front. One end of the piece of fabric is fastened to the front of the lay, in a convenient place near one end of the box front. The cloth is then taken along the face of the box front and the other end fastened in a similar manner to the lay. Although this procedure does not touch the root of the trouble and can, therefore, only be regarded as a temporary remedy, it certainly stops the soiling of the filling and consequently the production of defective cloth. It is given here because it is not always possible for a loom fixer to spend the necessary time in allocating the cause of filling markings and in effecting the required adjustments and replacements. As a means of temporarily obviating filling marks and enabling the loom to continue weaving satisfactory cloth, it is eminently satisfactory.

Air Conditioning Equipment at Jackson Mill of Nashua Mfg. Company

(Continued from page 51.)

ally by means of the instruments already mentioned at each apparatus, and the amount of outside air admitted to the basement to be mixed with the return air is also automatically controlled by means of dampers at the bottom of each return air riser. The mixture of outside and returned air then enters the closed chambers of each apparatus and is forced by the respective fans through the washers and up through the building again as described.

This system works well and does what it has been designed to do. In addition to providing the proper atmospheric conditions needed for the process work it makes for much better working conditions than would otherwise be possible. That is, it purifies and changes the air every eight to ten minutes in the whole building and maintains more comfortable temperatures. In summer, of course, there is practically no recirculation of air from the floors to the apparatus as it is all taken from outside and put through the cleaning and humidifying equipment. The slight rise in inside pressure which tends to result from this condition is taken care of by the relief dampers. In winter, however, only a comparatively small proportion of the air is taken in from outside and this is under automatic control, in order to save heat insofar as is consistent with providing pure air.

The maintenance of the conditioning equipment has been thoroughly systematized. The tanks are cleaned every week in summer, but twice a week in winter due to the extra accumulation of solid material from returned air. The eliminators, baffles, fans and casings are painted once a year to prevent corrosion. Each tank has 1,200 spray nozzles and these are all cleaned twice a year by taking them apart, boiling and blowing out with compressed air at 75 pounds pressure. Instrument readings are taken twice a day at each board throughout the plant, and the man who takes them can quickly tell from his experience whether everything is operating properly or not.

L. J. Rushworth

E. M. Holt

Joe Cobb

P. B. Parks, Jr.

W. H. Randolph

Geo. B. Snow

Industrial Relations Stressed at Annual Meeting of STA at Blowing Rock

CLIMAXING ONE OF THE MOST SUCCESSFUL YEARS of operation, under the leadership of Edwin M. Holt as president, the Southern Textile Association held its 30th annual convention amid the mountains of North Carolina at Blowing Rock, June 16-17-18. The scene of the convention was the Mayview Manor, a place in keeping with the beautiful surroundings, where service, entertainment, and good food lent charm to the affair. The crowd consisted of mill men, their wives, and representatives for the various companies serving the textile industry. The associate members' banquet was held Thursday evening preceding the actual opening of the convention, with the officers of the Association and their wives as guests. Friday morning was given over to business and talks by visiting speakers, and Friday afternoon the annual golf tournament was held. Friday night the annual associational banquet was held, with presentation of prizes for golf and setback; attendance prizes were also awarded, seemingly with each lady drawing her own winning number. Saturday morning the final business session was held.

Rushworth Elected President

L. J. Rushworth, Riverside & Dan River Cotton Mills, Inc., Danville, Va., formerly vice-president, was elected president of the Association, succeeding Edwin M. Holt. Joe C. Cobb was elected vice-president, and P. B. Parks, Jr., Erwin (N. C.) Cotton Mills Company, Plant No. 5, was named chairman of the board of governors. Marshall Dilling, A. M. Smyre Manufacturing Company, Ranlo, N. C., was re-elected executive secretary, and B. Ellis Royal, Charlotte, N. C., was re-elected secretary.

New members to the board of governors elected at the convention were: O. A. Sullivan, Gaffney (S. C.) Mfg. Co.; J. O. Thomas, Marshall Field & Company, Spray, N. C.; J. C. Edwards, Morgan Cotton Mills, Laurel Hill, N. C., and M. T. Poovey, Hannah Pickett Mills, Rockingham, N. C.

At the business session held Friday morning, Edwin M. Holt, retiring president of the association, delivered an address. After giving credit to the divisional chairmen and their executive boards for so successfully performing the functions of their offices, Mr. Holt explained the recent changes in the organization of the Association. He made recommendations for broadening the discussions of the divisional meetings, so as to incorporate consideration of employer-employee relations, hitherto banned from the programs of the divisional meetings.

The underlying theme of the feature addresses at the Blowing Rock meeting was the subject of industrial relations, and in his speech, President Holt treated this vital subject with emphasis, saying in part:

Employer-Employee Relationship

"A few years ago the relationship existing between operating executives and employees concerned only that department, or at most, only that company. Today the manner in which an individual superintendent or overseer deals with an employee is of national importance.

"Competition has probably never been as strong as it is at present, and because of guessing at wage rates and work loads, some plants now find themselves out of a competitive position, which leads me to say that I believe it is more necessary than ever before that a manufacturing concern know that its wage rate structure is fair and comparable, and that work loads are established in such a manner that everyone can give an honest day's work and secure pay in accordance with the training, dexterity, and the effort expended. If a management does not do this, if this most important matter is guessed at or carried out too much along the lines of established precedent, as such, I firmly believe that such a plant will be faced with either a prohibitive cost or a dissatisfied personnel, or both.

"Southern employees may have accepted in the past orders which they could not understand, with which they were not in accord, and with which they had no sympathy because of misunderstanding. I believe it absolutely necessary that an employee be made to understand what is being done, that his interest and effort be solicited, that he be made to feel that he is a part of the project, and that he is a partner with his boss and his company in trying to achieve some particular result.

"With further regard to misunderstanding, good employee relations are built from the top down, and somewhere ahead there is an end to the present depression. As I see it, a wise company will use this period to establish and firmly implant within the minds of its supervision and employees its policies with regard to conditions of employment, so that they will not be assailed with the fears bred by uncertainty and ignorant or deliberate misinterpretation. Uncertainty is not good for employees any more than it is good for business. I believe a company should do everything possible to allay the fears of uncertainty growing out of the fear of layoffs, fear of wage cuts, fear of discharge, and the fears of other uncertainties that may be in the mind of the working man.

"I know that there are men in this room who have in

The photos at the top of this page show, left to right: L. J. Rushworth, Riverside & Dan River Cotton Mills, Danville, Va., the new president; E. M. Holt, Erwin Cotton Mills Co., Cooleemee, N. C., retiring president; Joe Cobb, new vice-president; P. B. Parks, Jr., Erwin Cotton Mills Co., Erwin, N. C., new chairman of board of governors; W. H. Randolph, Jr., of A. E. Staley Mfg. Co., Atlanta, new chairman of associate members division; and George B. Snow, of Atlanta Brush Co., retiring chairman of that division.

their hearts rebelled at the trend of the times, but we must be reasonable enough to believe this—had there been nothing wrong, the trends would not have been in evidence, and some of our most acute problems of today could not have come into existence. If things are wrong, if working rules are unfair, if the rules of the game are not equitable, I still have enough faith in Americans to believe that the opinions of the majority will be enforced and that they will be fair."

Address of Mr. McLaurine

W. M. McLaurine, secretary of the American Cotton Manufacturers Association, delivered the next address, which also had as its theme employer-employee relationships. Mr. McLaurine, in his own inimitable manner, pointed out that we are experiencing today a social and political revolution and that those who are waiting for a reversion to the old status quo, or to some semblance of sanity and sobriety, are waiting in vain. Life's two component factors are things and people and since *things* are no longer important and since we will eventually have to learn to do without things, but one factor remains and that is people. With the foregoing as a background, Mr. McLaurine enthralled the members of the association with his truth and humor. Extracts of his talk follow:

"The problem of industrial relations is harder to handle today than the problem of manufacturing. You must accept this responsibility and solve it, or someone else will solve it for you. People are individual in their thinking and must be dealt with as individuals and all of them are different because environment and training have developed their instincts differently.

"When mankind lapses back into mob mind or action it forgets all training and influence and runs rampant as any other uncivilized race or nationality will do. You must prevent the mob mind. There are certain general desires that all people have, and in the enjoyment of these, their higher selves grow responsive and co-operative.

"Monotony is the most deadening factor of life. Mass production, highly mechanized, has of necessity become monotonous. And yet the creative instinct of life is still dominant. Every one desires to create something, to make some contribution. Is there not something in this clatter of the machine day that can be converted into a life release? Repression dams life up until it either destroys its possessor or explodes in some dangerous place or method. Monotony of work can express itself in the worker in many ugly moods.

"Curiosity is one of the most dominant instincts in human life. It is always at work trying to find out something and if it cannot then it begins to imagine and nearly always works out the wrong answer. In industry, the workers always do better when they know why they do it. They are more sympathetic when they know why certain things are being done. The average worker thinks and knows much more than he is ever given credit for thinking and knowing. His knowledge may be wrong or imperfect but he has done the best he could with the information available.

"The average worker wants to co-operate and wants to be a recognized integral part of the organization and yet through indifference and ignorance too often he is made to feel himself more and more aloof.

Associate Members Banquet

THE associate members division of the Southern Textile Association, composed of traveling salesmen and other associates of the S. T. A., held its annual banquet Thursday evening, June 16, preceding the formal opening of the convent'on the next morning. Guests of the affair were officers of the association, their wives, and early comers to the convention. Entertainment was provided by music, a floor show by the Eulene Holmes Troupe of Atlanta, and songs by Fritz Zweifel and Fred Decker. Dancing followed the planned entertainment, with girls being imported from Boone and nearby towns.

A resolution was adopted bearing testimonial to the late Lewis W. Thomason, who was the first chairman of the associate members division.

George Snow, Atlanta Brush Company, presided as toastmaster. In the election of officers, W. H. Randolph, Jr., A. E. Staley Manufacturing Company, Atlanta, Ga., was made chairman; Harvey B. Rogers, Parks-Cramer Company, was elected vice-chairman; and Junius Smith, "Textile Bulletin," Charlotte, was re-elected secretary-treasurer.

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"Mass production subdivides work and scatters workers until there is no intimate industrial association and often little social association. All people like to associate spontaneously on some plan or purpose originated by them, or some member of their group. The gregarious instinct in people must manifest itself and if it does not do it naturally it will do it unnaturally and contrary to good policy. The yearnings of mankind for association must be met in many ways from individual to group.

Associations that relieve tensions, that formulate friendships, that produce social progress, that are natural and not forced, that touch all classes and groups of workers must not be overlooked. The schedule of life and living must provide for such.

"The desire for approval is a silent longing in the heart of every one and it costs but little to recognize the values of individual worth and brings wonderful returns. Supervision demands that people shall be supervised as people and not as machines. A successful leader will not fail to approve whenever he can. All people are responsive to kindness and commendations.

"Your people want to follow you and will do so if you will make it possible for them to do so. You must know what they think about you. So far you have been busy considering what you think about them. What they think about you is more important from an industrial relations point of view than what you think about them.

"In these days of specialization of work with its definite and independent departments, as some think, a conscious effort must be made by all to weld the separate units of workers into a compact whole of industrial solidarity. A fine and satisfactory industrial morale does not happen, it is a result of definite social and industrial planning. It takes into consideration the common instincts of mankind and how they react; it further takes into consideration that people differ temperamentally and under the same conditions.

"A medical man administers to human physical needs according to the idiosyncracies and peculiarities of the pa-

Candid photos by J. W. Ivey, of Mathieson Alkali Works, Inc.

Informal shots at Blowing Rock. Left to right: Smiley Taylor, of Staley, John McFalls of Rockingham, and W. H. Randolph, Jr., of Staley; Mr. and Mrs. George B. Snow and friend; M. T. Poovey of Rockingham, the Draper delegation, including Tommy Henderson, John O'Neill, and the Brice twins, Bob and Walter . . . . . .

Candid photos by J. W. Ivey, of Mathieson Alkali Works, Inc.

At left, Jack Crist and Leland Atkinson, of Southern Dyestuff Corp.; next, two mill men from Oconee Mills, Westminster, R. H. King, of Springs Cotton Mills, Lancaster, and Jack Craft, manager of the Mayview Manor; next, Tom Mott and Cantey Alexander, of Corn Products. Extreme right, E. J. Eaddy, of The Textile Shop, and a dancing partner . . . . . .

tient. Some people have one ailment and some have another. Even those people who have the same disease may require different medicines and different treatment. Those who are listening to me could do well to remember this analogy.

"Most mill superintendents and overseers use the word 'grief' many times. It is true that every one is using the word today, and it means many things to many people, so we shall try to define it for a superintendent or overseer. I shall use Glenn Gardner's definition of grievance because this causes the grief. I quote: "Anything about a man's job which irritates him or tends to make his working conditions unsatisfactory may be a grievance." It may be silent and unuttered; it may be real or imaginary, it is still a grievance.

"The worker thinks he has a grievance and maybe he has one and in either case it cannot be cleared up until it receives fair, open-minded, patient and considerate treatment.

"In these days of disturbed social conditions you must keep a cheerful and sympathetic open door for your own people. Your attitude or reception of them must make them have confidence in you at once. Even though the grievance may be imaginary, or in error on his part, patient, tactful, face saving handling will always work faster and be more effective than impatient and brusque, dictatorial methods.

"Let the complainant get everything off of his chest and then you can develop the facts and reach a conclusion.

"Don't be hasty and arbitrary in your decisions. Place yourself in the worker's position and try to discover how and why he thinks as he does. You may make mistakes. You will make mistakes. You must admit them and correct them. No man is 100 per cent right all of the time and you need not assume that attitude.

"Grievances can become grief until they are too burdensome to bear or they can be a means of promoting a fine industrial relations situation in your plant. It all depends upon how you handle them."

Mr. Campbell's Address

The final speaker Friday morning was Malcolm E. Campbell, senior cotton technologist, Department of Agriculture, Washington, D. C., who addressed the Association on the subject of cotton spinning tests and related fiber studies as conducted by the Bureau of Agricultural Economics, a division of the Department of Agriculture. Some of the factors brought out by Mr. Campbell follow:

Cotton breeders have demonstrated that by crossing and selecting they can control to a remarkable degree the size, shape, and fruiting habits of the cotton plant, and the quantity of lint. When cotton is found that spins into exceptionally good yarn, it is analyzed and subjected to many tests to ascertain why it proves satisfactory. The results of these studies are compared with data accumulated from large numbers of cottons of the same staple length. Somewhere along the line one or more of the characteristics of the cotton are almost sure to be found outstanding and to them may be attributed the high spinning performance.

Tests have shown that the roll settings in the card room can be varied over a considerable range without making any noticeable change in the quality of the yarn spun. On regular draft spinning frames, however, the quality of the yarn is very sensitive to roll settings; the best results are obtained when the rolls are set as closely as possible without producing an objectionable amount of cockling.

The twist multiplier that gives the strongest warp yarn is dependent upon the staple length of the cotton, longer staples requiring lower multipliers to produce optimum strength, but is not dependent upon yarn count. An equation showing this relationship has been developed.

Some carefully-conducted spinning tests involving three different staple lengths of cotton have shown the definite superiority of long draft spinning over regular draft, from the standpoint of strength and smoothness of yarn.

A formula has been developed to show the expected skein strength of any count and any twist of carded yarn spun from any staple length between ¾-inch and 1¼-inch, when manufactured under the set-up in use at the spinning laboratories.

At present, work is going forward on spinning and fiber tests of cottons produced in what is called our "regional variety" studies, in co-operation with the Bureau of Plant Industry. This study was designed so as to show the influences of variety, soil, climate, and season on the fiber properties and spinning quality.

Saturday Morning Session

At the final business session of the meeting, held Saturday morning, Dr. Howard Rondthaler, president of Salem College, Winston-Salem, N. C., pointed out the responsibility of the leaders of southern industry. At this session, again personnel relations was the chief subject, and Dr. Rondthaler said "there is a land that is common ground between the employer and the employee, and it is the privilege of industry to seek out that common ground." He brought out that this common ground is not a plot laid out by the government, but is the result of a mutual understanding between industry and its workers.

Jacobs Talks on Industrial Relations

The economic side of industrial relations was emphasized in the final address of the convention, by William P. Jacobs, of Clinton, S. C., secretary-treasurer of the Cotton Manufacturers Association of South Carolina. Discussing first the Wagner Act, Mr. Jacobs showed that this legislation, "of a type to force moral and social uplift by law", had not only failed to bring tranquility and peace, but has actually increased strikes. He quoted government statistics showing the number of strikes in the United States in 1927 to be 707; in 1928, 604; in 1929, 921; in 1930, 637; in 1931, 810; in 1932, 841. Then, in 1933, the first year under NRA, strikes jumped to 1,695; in 1934, 1,856; in 1935, 2,000. In July, 1935, the Wagner Act was passed; in 1936, the strike total jumped to 2,172, and, in 1937, to 4,740.

The Act, he said, was not born of a great national need, but is rather "the child of political expediency", "forced upon Congress through political intimidation by an organized minority" though they "inherently despised and distrusted the plan". It has, he said, "arrayed one group of working men against another; in its enforcement it has shown partiality toward one group, to the exclusion of the freedom of the other. Surely the peaceful conditions in this section of the country at least would not necessitate the passage of a drastic national law to force something that already existed in a very prac-

Annual S. T. A. Golf Tournament

INCLEMENT weather prevented a number of would-be golfers from participating in the annual golf tournament held during the Southern Textile Association convention this year. Those taking part in the tournament reported that the greens were unusually fast, even for rainy weather, but playing was uncomfortable in the mountain rains.

For mill men W. H. Miley, Jr., Erwin (N. C.) Cotton Mills Co., Plant No. 2, received the prize for low gross with a score of 79. W. F. Denning, Wiscasset Mills Co., Albemarle, N. C., took second prize with an 83. Low net was won by W. M. McLaurine, secretary, American Cotton Manufacturers Association, Charlotte, N. C., with a score of 66, and he received the association's cup with the right to retain it for a year. This is the second year Mr. McLaurine has won this cup; winning it one more time will permit him to retain the cup permanently. Second low net was taken by P. B. Parks, Jr., Erwin (N. C.) Cotton Mills Company, Plant No. 5, with a score of 69. Frank Dennis, A. A. Shuford Mill Company, Hickory, N. C., was awarded the prize for high gross among mill men with a score of 102.

In the associate members division, W. B. Uhler, Borne Scrymser Company, took first prize for first low gross with a 71, and Thomas Mott Corn Products Sales Company, won second place with the same score. Channing Brown won first low net with a score of 66 and J. R. Henderson, Parks-Cramer Company, won second low net with the same score. Consolation prize was received by H. R. Brock, Whitinsville Spinning Ring Company, with a score of 120.

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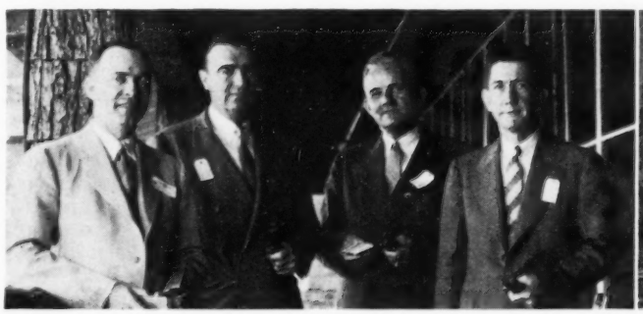
tical manner—a peaceful, harmonious relationship."

Taking up next the oft-repeated charge that southern textiles are a low-wage industry, Mr. Jacobs again cited government figures in refutation. "The most accurate method of determining a true comparative picture of wages," he said, "is found in the basis adopted by the federal government itself in the consideration of the value of the product that is made by the worker. No one would expect a worker in a lumber saw mill to be paid the same wage as the worker who makes fine watches." On this basis, according to government reports for 1935, the value added by manufacture paid in wages in the textile industry in the State of Virginia is 73.7 per cent, the highest in textile America. Along with Virginia, the states of South Carolina, Alabama, Georgia, North Carolina, Mississippi and Tennessee rank among the first eight from the standpoint of value added by manufacture paid in wages. New Hampshire is the only state outside the South ranking in the first eight. The average of all the southern states is 63.7 per cent, or 12.1 per cent higher than the average of all of the New England states.

"A man may value his services as highly as he pleases," said Mr. Jacobs, "but from the standpoint of practicability and opportunity, it must be admitted fundamentally that a man's wage cannot be out of line with the value of the product which he manufactures. No matter what your rules of social and moral uplift may be, this is a natural law which cannot be abrogated, and the most authentic figures show that on this basis, the workers in the textile industry in the South are unusually well paid; in addition, they have the exceptional advantages of savings resulting from the various wage equivalents incident to the mill village system."

"What the textile worker needs more than all else is not an increase in wage nor a shortening of his hours," concluded Mr. Jacobs. "What he needs is stability, permanency of employment, the security of a regular job, and a reasonable wage made possible by a normal margin from a normal market. Industrial harmony will never be attained through legislation, and will never be attained through unreasonable, impractical, economically impossible increases in wages or decreases in hours. It can only be the product of a stabilized permanency of employment and security of employment. We should cease this wild orgy of regulation of the employer, for with it automatically goes the responsibility for the regulation of the operation of the employee. What we need is not regulation, which says 'Thou shall not', but stimulation and inspiration, which says 'I can and I will'."



Photos by John C. Fonville, of "Cotton"

The four gentlemen at the left are, l. to r., Huss, Thomason, Taylor and Sorrells, of N. Y. & N. J. Lubricant Co., present at all conventions with pencils and notebooks as souvenirs. The young lady in the other group is surrounded by Horan, Wear and O'Connor, of Penick & Ford, Ltd., Inc., Ligon of Abbott Machine Co., and Wynne of Universal Winding Co. The detached figure at the right was unidentified by the photographer . .

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D. W. Peabody Represents Trundle Engineering Co.

Douglass W. Peabody has been made representative of The Trundle Engineering Co., management and industrial engineers, Cleveland, Ohio, for the states of Georgia, Alabama, Tennessee, North and South Carolina. Mr. Peabody will make headquarters in Atlanta.

Mr. Peabody was associated with the General Electric Co. for a period of 25 years, and was its manager of industrial sales in the Southeast for some years prior to his establishment as consulting engineer. He is a graduate of Alabama Polytechnic Institute, Auburn, Ala.

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Patents Granted

According to Paul B. Eaton patent attorney, Charlotte, N. C., Thomas F. Sugg, Gastonia, N. C., has been granted a patent on a leasing mechanism for warping machines; it is assigned to Cocker Machine & Foundry Company, Gastonia. It is designed for taking a lease in moving warps, the leasing mechanism having guide and warp separating members with an intervening pivotal device to form concurrently spaced lease sheds in traveling warps, with means for arresting the lease thread when inserted in the shed. There are also means for actuating the device to permit closing of the sheds upon the lease thread and to free the lease for travel with the warps.

Edward F. Kempton, Gastonia, has secured a patent on a ring traveler for spinning frames, the traveler having an ovoid cross-section and the largest end of the ovoid being disposed at the trailing edge of the traveler. Polly Prentiss, Inc., Sumter, S. C., has received a patent for a tufting machine. William Wallace Meredith, Anderson, S. C., has been granted a patent for a grinding mechanism for cards.

CURRENT TEXTILE TOPICS ....

SUMMER came in with the cotton industry feeling the last (presumably) exhausting effects of the Roosevelt depression. The fundamental conditions were indicative of a change in the textile cycle. At the same time the Administration's lending-spending program, including its record volume of WPA business in cotton goods, was counted upon heavily as a supplement to normal developments as a force for turning the tide of business.

Talk of the Month

Heavy government buying of cotton goods appears to have been timed well, either from the purely economic or from the political angle. It was coincident with a changing condition in civilian trade whereby orders for goods were an augury of new production. For a year and more the mills has been slackening production because of accumulating inventories on a poor market. For many months the mill output was below even a small rate of consumption.

Here around the middle of June was laid the foundation of a new active cycle. The peak season of retail trade in cotton goods arrived with distributors' stocks low and the mills not making any volume for stock against future requirements of consumers. Even through May, as expected, a number of mills were getting back into production after April had shown the smallest national consumption of cotton for nearly three years.

Yet June found the mills under pressure for still lower prices in many kinds of gray goods, because of uncertainty in value of the raw cotton and the almost interminable lag in general business. Cotton goods were in an exceptional competitive position among the textiles, but in their individual situation were still very unfavorably placed. In fact prices were so ruinously low that new curtailment was in order among many plants.

From one standpoint this was considered prophetic of a relative advantage in cotton goods over other lines of textiles. As pointed out by The Cotton-Textile Institute, at the time of National Cotton Week, the very low level of gray cotton goods was an opportunity for converters and retailers. It allowed the converters to put exceptional styling into finished merchandise and still leave prices at levels attractive to ultimate consumers.

On the other hand the disastrously low levels forced upon mills, as previously indicated, were such as to make shutdowns preferable to operations in many cases. In this desperate condition, some print-cloth manufacturers were reported to be experimenting with spun rayon fabrics and actually to be switching part of their loomage to the production of such cloths.

Such a move, viewed superficially, would seem to be a mere shifting of competition in a bad general textile situation. It would relieve other mills making print cloths, but intensify competition in the field of rayons and wool goods. In fact trade opinion inclined to the idea that a rush into the staple rayon field would create overproduction destructive of all profits for all the mills involved.

In a period when textile mills in the major divisions generally have been drastically curtailing, a shifting of production seems hardly to be a constructive step. No ordinary person would hazard a prediction on the relative positions that will develop through competition of rayon over the years. Nevertheless, any shift calculated to increase the total of textile output in the recent conditions hardly seems wise.

Queen of Gastonia's Cotton Ball

● *Typical of the recognition of National Cotton Week this year, May 30-June 4, was the Cotton Ball at Gastonia, N. C. The above photograph shows Miss Maude Kelly Smyre, daughter of Fred L. Smyre, president of the A. M. Smyre Manufacturing Co., and of the Locke Cotton Mills, who was crowned queen at the Gastonia event. Miss Smyre's coronation dress, designed by Leonora Ormsby, well known designer of New York City, was made of shadow print organdie. The skirt measured 35 yards around the bottom, and the entire outfit was most exquisite.*

Miss Smyre's father has been active in formulating and upholding the progressive policies of the Southern Combed Yarn Spinners Association, and is regarded one of the leaders in this branch of the industry.

◆ ◆

Consumer lines of cotton goods, meantime, were in a position promising greater activity and ultimate profitable levels again as the industry approached the start of the second half of the year. The government orders for more than 57,000,000 yards of goods were expected to give something of a fillup to mill production by the first of this month. It was believed that this business and the clean-up of finished consumer merchandise after National Cotton Week would also help the primary market materially.

While waiting for the turn, however, the industry faced a confusion of conditions within and without. Crop developments were of varying effect through the first half of June. The market for securities made hard work of forecasting an improvement in the general economic picture. Raw cotton was subject to varying forces, with effect on values of its manufactures. Commodities in general were slow to come out of the doldrums.

All the same, the cotton industrial position at the middle of last month looked to be as promising for a change as anything else, at least from the side of consumer goods. The inventory situation, through a gradual evolution the first half of the year, was brought to an apparently healthy state. This change was accentuated by the heavy government business early in June, leaving less available for civilian trade.

There remained a less favorable phase of things in the industrial fabrics end of cotton manufacture, accounting for nearly half of the volume of the industry in poundage though not in yards. Obviously this division depends upon the general economic situation, notably in such fields as automobile manufacture. Here the best hope is in the fall, when fundamental industrial conditions and the government relief program are expected to provide a broad impetus to the nation's business.

New England Mill Situation

WELL OVER a year ago the cotton manufacturing industry of New England began curtailing in an effort to forestall a serious slump. Right up to this month it was still struggling with something more than a slump the unexpected collapse of business. General conditions have dominated the mill situation, dragging out a dull market which, under the sound policy of curtailment, should have been corrected long ago.

At the beginning of the summer, business generally in this section was giving no evidence of the long-awaited pick-up. Curtailment of industry, while constructive in the long run, aggravates poor business for the time being. The process of liquidating inventories is delayed by decrease of purchasing power and the combination of circumstances made the summer one of little promise.

Nevertheless June brought signs of growing interest among converters in fine gray goods. It was obvious that converters at last had let their stocks dwindle toward the vanishing point and were in need of replenishment against the prospective requirements in finished goods the coming season. Production must proceed ahead of distribution and it was felt that the month had marked the end of apathetic interest.

It was estimated, meantime, that the cotton consumption of New England in April was a full 49.5 per cent under that of the same month in 1937. The drastic nature of curtailment since last year appears in another estimate that cotton consumption for nine months to the end of April was 44.2 per cent under that of the previous like period. Poor business conditions for the district, making a hesitant market for finished goods, accentuated the mill relapse.

New production to replace exhausted stocks must soon become active, however, if distributors are to be prepared for the better movement anticipated in the fall. It is logical, in view of the government spending program and some inflationary prospects, for buyers to be expanding their purchases of gray goods through the summer. The case is the more likely from drastically low prices that cannot last and which make cottons unusually favored in textile competition.

Astonishingly Low Bids on WPA Contracts

Combed goods producers were astonished at the low bids submitted for WPA contracts and for the time being they were a new cause for discouragement. The statistical position of fine goods was firm, however, and producers refused to allow such bids to shake their position. For the long run the government business was accepted as constructive the cotton industry at large as cutting into excessive supplies for the regular trade.

Standard Statistics Company, Inc., in a survey at the start of the summer, reported that inventories in mill and converter hands were still excessive, but that the situation was healthier in the fancy goods and specialty fabrics divisions. Buyers were just as content to sit back and let manufacturers carry the load in those as in other fabrics, however, hence New England mills had to continue waiting for business.

While the depression has caused a heavy curtailment of production among New England mills for months and prices have been carried to ruinously low levels, some specialty plants have resisted the tide in notable fashion. At a recent sales meeting of the Pequot Mills, of Salem, Mass., it was reported by the treasurer and general manager, Rudolph C. Dick, that operations had been maintained on a full-time basis, with sales holding a very favorable relation to production.

This exceptional condition, however, appears largely due to the production of goods that go to the consumer under the mill name and gain thereby a steadier market than other lines. Stores are found ready to promote branded lines that have established popularity. Mr. Dick, while finding uncertain factors still present, was reasonably optimistic toward the future, especially for the products of his own plant.

Among the developments incident to the depression was the recent suspension of operations by the Textile Workers' Organization Committee of the CIO in Lowell, Mass. No reason for the decision of the CIO to take such action was given, but it was believed that the lack of support in a period of slack work for employees in the mills was responsible. The TWOC had been busy in the city the previous year.

"THE SITUATION"

As Seen Across an Executive's Desk

June 20, 1938

IN A BLAZE of last-minute bickering Congress shut up shop and went home. Now we feel like a housewife the morning after a big beer bout and look around to see what sort of a job we can do in setting the place to right again.

The New Wage-Hour Bill

Biggest thing cluttering up the industry today is the final version of the wage-hour bill—passed and definitely a part of us. Like most things which we dread and fight against, we find it—as adopted—not so terrible as we had anticipated. The conferees of the House and Senate did a reasonable piece of work and gave us a fair compromise. Proving that the War Between the States is actually over, wage differentials due to geographical influence were eliminated and instead we are given better differentials based upon freight costs, light, heat, power rates, land and building costs, taxes and other economic conditions.

Like Jacob, who waited 7 years for Rachel, the promulgators of the 40-40 ratio feel they will have that seven years from now. Here is the arithmetical formula of the bill covering minimum wages per hour and maximum hours per week:

1st year -------	25c per hour	44 hours per week
2nd year ------	30c	42
3rd year ------	30c	40
After 7th year_	40c	40

Actually the floor and ceiling will not move toward each other with this easy and progressive action. From the beginning they will be subject to change.

When, 120 days after enactment, the bill becomes effective, the wage-hour administrator, drawing a salary of $10,000 per year, and himself being drawn from the Department of Labor, will appoint up to 750 boards, to study the various industries, having a special committee for each industry, with no specified number on the committee but the public, the employer and the employee being represented, and represented equally. Members of the committees will be selected with due regard to geographical region. They shall be paid on a *per diem* basis and shall have the power to make investigations. The administrator, after hearing, shall have the power to disapprove findings of the committee and refer the matter back to the same or a new committee. The administrator can require the attendance of witnesses, submission of books, documents, etc. He or his representatives may investigate and gather data regarding wages, hours, and other conditions and practices of employment, and may enter and inspect places of employment. He can provide exemptions from the minimum wage for learners or impaired workers, and shall require employers to keep records of wages, hours and other pertinent data.

No child under 16 years of age can be employed in the provisions of the new bill—but this item is simply a joker for, as we all know, child labor was outlawed in the textile business years ago.

Enforcement of the law will be made through the courts, with court review on questions of law. Findings of fact by the administrator shall be conclusive if supported by substantial evidence. Penalties for violation are $10,000 fine or six months imprisonment, or both. To collect pay awarded by the boards, employees can sue their employers in the federal courts. Liability of the employers—double the wages due plus all legal costs.

Just what the escalator provisions on wages and hours will do to the textile industry can hardly be hazarded now. We must remember that the great majority of mills have adhered to the old NRA hours of 40 per week. It is reasonable to assume, however, that if one should speed up to 44, as provided under the new law, others will follow, for what one mill undertakes to do in production capacity will set the pace for all, for not one could afford to lose even that small competitive advantage that four hours' operation margin could give to another.

Check-ups have shown that the textile wage today averages above the floor mentioned in the measure. Those mills—and there are many—which have adhered to the NRA wages at 30 cents (and some of which we know still retain the additional wage increases set up in 1936) will have to re-adjust their scales to fit the general wage picture of the industry.

It will be a bitter dose for some operatives to accept higher hours and lower wage scales set by national legislation which are incompatible to their present scale. However, the dose will most probably correct some of the evils both actual and potential which have faced us since NRA collapsed. Most notable is that of the ever-present chiseler. The biggest chiseler today is not the individual plant, but states which are enticing industry to their bosoms by tax-free elements and sweatshop labor scales, the latter on the plea that even poor wages amounted to more cash money than the laborers of that locality had gotten before . . . or the old story of a little being better than none. This great menace—if not already felt by the industry at large—would have become within a few years the greatest competitive factor in industrial life of the U. S.

Freight Rates

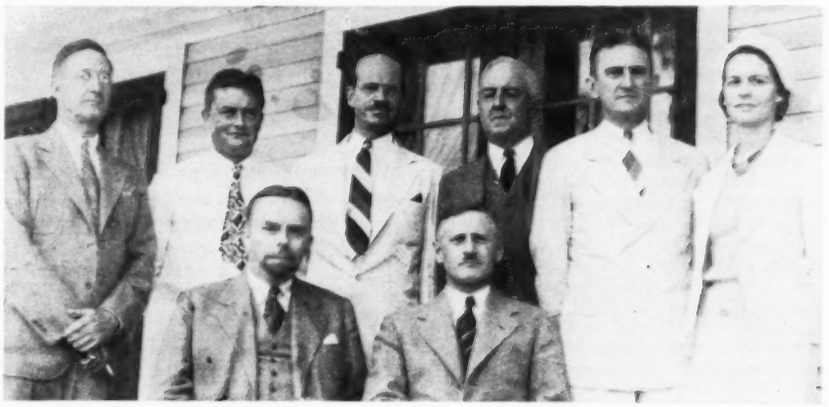
Passage of the wage-hour bill with its transportation rate differential clause automatically makes freight rates the most important factor in our cost system. It intensifies the bitter fight which has been gathering force for some months in the South on the freight differences. It makes more important than ever the long and short haul problem. We prophesy that everything to do with traffic management will become of more and more importance to the industry as time goes on and that it will open the door to controversy both bitter and long, not only between northern and southern manufacturers but between manufacturer and spoiled customers. Every item must be considered: store door delivery and its extra cost in the metropolitan area; truck-

Entertainment for Distinguished English Visitors

THE FINAL EVENT *in a series held in conjunction with the visit of a delegation from the Textile Institute, of England, was a one-day meeting in Gastonia, N. C., on June 9, under the auspices of the Southern Combed Yarn Spinners Association. The occasion was attended by executives of southern textile associations, trade publications, research associations, and textile schools, as well as a large number of mill executives. (Frank Nasmith, president of the Institute, had returned to England prior to the Gastonia meeting, but the Institute was represented by his association on the tour, J. R. S. Goodall.) The accompanying photograph, made at the Gastonia meeting shows some of those present at the occasion.*

Prior to the Gastonia meeting, Messrs. Nasmith and Goodall attended a number of functions in their honor in New York and the East, including a reception by the provisional committee in New York, a dinner by the board of governors of the American Association of Textile Technologists, a visit to the American Standards Association, a luncheon by the U. S. Institute for Textile Research, a meeting with the officers of the Textile Division of the American Society of Mechanical Engineers, a visit to Massachusetts Institute of Technology, a meeting with the textile committee of American Society for Testing Materials, visits to the Bureau of Standards and Department of Agriculture in Washington, a meeting with Frederick M. Feiker, director of the textile educational activities of the Textile Foundation, and a dinner by the council and officers of the American Association of Textile Chemists and Colorists.

The purpose of the delegation was to tell textile organizations and associations in this country of the aims and achievements of The Textile Institute of Manchester and to urge closer cooperation.



Standing, left to right: C. L. Eddy, of Renfrew Bleachery, and R. E. Rupp, of Pacific Mills representing the Piedmont section of the American Association of Textile Chemists and Colorists; Douglas G. Woolf, editor of "Textile World", member of the provisional committee; W. M. McLaurine, secretary, American Cotton Manufacturers Association; R. Dave Hall, president, and Mildred G. Barnwell, executive secretary, Southern Combed Yarn Spinners Association. Seated, left to right, Harold DeWitt Smith, of A. M. Tenney Associates, secretary of the provisional committee for the visit, and Mr. Goodall.

lines versus rails; boat versus both truck and rail. It even opens the possible necessity of heavy inventories to be held by southern mills in northern and eastern warehouses as the element of delivery time versus cost of delivery enters the picture. Mills will conclude to insist that their customers specify regular delivery dates and give up the present practice of express and air-mail order business.

And, speaking of freight rates, both committees in Congress on Interstate Commerce reported last month on a bill which would permit southern shippers by rail to select the shortest and cheapest route by which goods could be transported.

Under the present Interstate Commerce Act, shippers simply turn goods over to a railroad and they are handled and routed within the discretion of the railroads, whereas, oftimes, a shorter connecting route would save tariffs and switching charges. The bill would leave the commission with the necessary right to require the establishment and maintenance of through routes between railroads which it finds to be necessary or desirable in the public interest, just as it can now do in the case of joint rail-and-water routes.

The committees decided that shippers of the country should be given the right to use the shortest, quickest, cheapest routes available, and a representative of the largest shippers' organization in the country appeared at hearings held during the 74th Congress on a bill eliminating the short-haul provision and urged its passage. The bill as it stands does not give the commission power to order the railroads to route shipments in any particular way, but merely provides that if a shorter route exists, and if it is in the public interest for the shippers to have this route available, the railroads shall publish the route and rate in their tariffs. It is not the intention of the proposed law to interfere with the right of the truck lines to their long haul, except where this right conflicts with the shippers' right to the shortest route and the lowest rate. If there is a conflict, the shipper is merely given the opportunity, if he wishes, of using the shorter or cheaper route.

A Word on "Conditions"

In the meantime, markets are slow on every hand but the sale last month of 60 million yards of cotton goods for WPA sewing room purposes, and the proposed purchase by the WPA, in the near future, of 10 million dollars' worth of men's and boys' garments for fall wear, seems to promise that the mills will be active on two counts. The latter large purchase will clear wholesalers' shelves, and relieve the backing up of clothing orders which will naturally reflect in some better business for the manufacturers, and the former purchase is an additional backlog through summer slump periods.

Everyone admits that business is slower than at any time in a generation. All inventories remain high; being on a level of 1928. Billings are approximately one-third less than at this time last year. Unfilled orders on books are about 50 per cent less than at this time last year, cotton consumption stands at about 50 per cent less than last year; production on all items is much less than this time a year ago. As a matter of fact, according to the Federal Trade Commission, our industry is operating on manufacturing margins about the same as during the first half of 1935 when the industry as a whole was admittedly operating at a loss.

COMMENT on the Cotton Market

New Orleans, June 15, 1938.

THE TREND of the cotton market continued downward during the past month. Bearish statistics, unfavorable domestic and foreign trade conditions, small exports and poor consumption, plus liquidation, were the depressing influences. There is the prospect of a huge carry over of American raw cotton this year, as well as a large surplus of foreign growths, and while much of the domestic product is under Government loan control, there is a new crop in the making. As might have been anticipated under existing conditions, it was reported there was much hedging abroad of foreign growths.

Recently the New York Cotton Exchange Service issued interesting data as regards the World's Stocks of Cotton, as of April 30th this year compared with holdings on corresponding date last year. Of American lint cotton the world's stock was put at 15,960,000 bales versus 9,343,000 last year; of foreign growths 13,931,000 compared with 11,661,000—making a total of 29,891,000 against 21,004,000.

Such huge stocks, especially of American, weighed heavily on the market, particularly since there was no improvement in trade conditions and no encouragement as to the immediate future.

The final Government report, covering the United States cotton crop of 1937 raised acreage and production above the previous estimate. The yield per acre was advanced from 264.6 to 266.9 pounds, the crop was placed at 18,945,022 bales and the acreage at 34,471,000 acres.

Already the first bale of the Texas 1938 crop was received here. It was marketed at Corpus Christi May 31 versus June 15 last year and June 22 year before last. The earliest Texas bale on record was received May 26, 1921, at San Benito.

Lately there were released four private cotton crop estimates. One prediction was for an acreage of 25,935,000 acres and a crop of 9,815,000 bales. Another estimate was for an acreage of 27,600,000 acres and a production not over 11,300,000 bales. A third estimate predicted an acreage of 28,628,000 acres and a crop of 12,927,000 bales; and a fourth estimate pointed to an acreage of 28,592,000 acres and a crop of 12,674,000 bales. Private acreage estimates now range from about 25,935,000 to 28,628,000 and crop forecasts from about 9,815,000 to 12,927,000 bales.

For week ended June 13, substance of the summary of Washington's weekly weather and crop report was as follows:

"In the cotton belt moderate temperatures were the rule but rainfall was rather frequent in most sections; there was too much moisture over considerable areas. In general, the week's weather was only fairly favorable for the cotton crop."

A late Washington press dispatch is to effect that a strenuous effort by the administration to stimulate a business upturn before Labor Day, September 5, appears to be in prospect now that Congress is preparing to adjourn. Indications from every Government agency which will help distribute lending—spending billions—point toward quick circulation of recovery funds. They expect a stiffening of prices in many lines as a result of the influx of PWA and other Federal buying orders. This purchasing, it is expected, will lead to a wave of private shelf-filling orders once it is demonstrated that the low-price bottom of the recession has been passed. There has been some buying of cotton goods by the Government which may be the start of a buying movement; there is a slight improvement in steel bookings and in electric power. With the adjournment of Congress, it is believed business will improve.

WORLD SUPPLY AND WORLD DISTRIBUTION OF AMERICAN, FOREIGN, AND ALL COTTONS FROM AUGUST 1 TO APRIL 30, AS PRESENTED BY THE NEW YORK COTTON EXCHANGE SERVICE

AMERICAN COTTON

Season	Bales 1936-37	1937-38
Carry-over August 1	6,998,000	6,235,000
Production	12,203,000	18,274,000
Supply August 1 to April 30	19,201,000	24,509,000
Consumption August 1 to April 30	9,858,000	8,549,000
Stock April 30	9,343,000	15,960,000
FOREIGN COTTON		
Carry-over August 1	6,651,000	7,078,000
Production	18,325,000	18,500,000
Total supply	24,976,000	25,578,000
Consumption August 1 to April 30	13,315,000	11,647,000
Stock April 30	11,661,000	13,931,000
ALL KINDS		
Carry-over August 1	13,649,000	13,313,000
Production	30,528,000	36,774,000
Total supply	44,177,000	50,087,000
Consumption August 1 to April 30	23,173,000	20,196,000
Stock April 30	21,004,000	29,891,000

CENSUS REPORT—UNITED STATES

Bales—	This season	Last season
Consumption of lint in Cotton Growing States during May	356,000	559,000
Consumption of lint in New England States during May	57,000	90,000
Consumption of lint in all other States during May	13,000	20,000
Consumption of lint in the United States during May	426,000	669,000
Consumption of lint in the United States during April	414,000	719,000
Consumption of lint in Cotton Growing States, 10 months	4,129,000	5,573,000
Consumption of lint in New England States, 10 months	603,000	900,000
Consumption of lint in all other States, 10 months	132,000	213,000
Consumption of lint in the United States, 10 months	4,864,000	6,686,000
Mill stocks May 31	1,586,000	1,815,000
Stocks in pub. stg. and whs. May 31	10,058,000	3,584,000
Stocks in mills, pub. stg. and whs. May 31	11,644,000	5,399,000
Stocks in mills, pub. stg. and whs. April 30	12,189,000	6,202,000
Active Spindles in Cotton Growing States during May	16,027,000	17,788,000
In New England States during May	4,740,000	6,123,000
In all other States during May	575,000	745,000
In the United States during May	21,342,000	24,656,000
In the United States during April	21,786,000	24,727,000

BRITISH BOARD OF TRADE REPORT FOR MAY

Year—	1938	1937	1936
Exports of yarn, lbs.	8,000,000	14,000,000	12,000,000
Exports of cloth, yds.	111,000,000	162,000,000	146,000,000

AMERICAN COTTON—August 1 to June 10

Bales—	This season	Last season
Brought into sight, marketed	14,940,000	13,631,000
Exports from the United States (including Canada)	5,596,000	5,478,000
Spinners takings, world	11,000,000	13,227,000
Stock at all U. S. ports, June 10	2,583,000	1,288,000

WORLD'S VISIBLE SUPPLY OF COTTON—June 10

Bales—	This year	Last year
Stock at U. S. ports	2,583,000	1,288,000
Stocks at 102 interior towns	2,806,000	1,144,000
Afloat to and at ports of Europe	1,387,000	840,000
Afloat to and at ports of the Orient	160,000	548,000
Total of American	6,936,000	3,820,000
Total of other kinds	2,455,000	2,102,000
GRAND TOTAL OF ALL KINDS	9,391,000	5,922,000

What the Southern Mills are Doing

Valdese (N. C.) Manufacturing Company has installed 9 new Universal No. 44 Roto-Coners. 12 new Whitin long draft frames have been installed in Unit No. 1 and 10 frames have been changed over to long draft spinning. In Unit No. 2 ten new Whitin frames were installed and 24 changed over to long draft. Two vertical Gaston County Machine Company kiers have been re-worked and plans are to revamp the entire department. The kiers are operated by new 25-hp. motors.

Colonial Chenille Corporation, Rome, Ga., is the name of the newly formed bedspread manufacturing concern which will operate 35 machines, installed in a building formerly used by the West Rome Hosiery Mill. Nevin Patton is manager of the new company.

Hickory Weavers, Inc., Hickory, N. C., a plant which has been in bankruptcy, has been purchased by Henry C. Cline. It is expected that the mill will be reorganized and when business conditions become favorable, it will be placed in operation.

At the Bibb Manufacturing Company's plant located in Porterdale, Ga., a community center building will be constructed, the Porter Memorial Hall, dedicated by James H. Porter of Macon, Ga., in memory of his father. The building will cost about $50,000.

American Throwing Company is the name of a newly-organized concern at Griffin, Ga., which will process raw silk and rayon. Application for charter was made by R. P. Shapard, Jr., and W. A. Gregory. Capitalization is $70,000.

Crompton - Shenandoah Company, Waynesboro, Va., has begun construction of an addition to the plant costing $12,000. It is being built to improve working conditions in the velveteen department.

The Pioneer Fabric Company, New York, has leased the plant of the old Alabama Braid Corporation and is preparing it for full operation, according to an announcement recently.

Celanese Corporation of America is planning to issue about $15,000,000 in debentures for the purpose of making important plant additions and improvements in Giles County, Va.

Patterson (N. C.) Cotton Mill has repaired, re-painted, and re-covered, 25 dwellings in the mill village. Henry C. Cline Construction Company, Hickory, N. C., was in charge of the work.

Novelty Mills, Inc., New York City, have leased a building at Dalton, Ga., and will open a plant for the manufacture of chenille spreads and candlewick novelties.

American Viscose Corporation, Front Royal, Va., has begun installation of machinery. This plant will be the largest of its kind in the world, it is stated.

Bama Cotton Mills, Enterprise, Ala., are constructing a one-story addition to the plant at a cost of about $30,000.

Orr Heads S. C. Cotton Textile Group

Marshall P. Orr, president and treasurer of the Orr Cotton Mills, Anderson, S. C., was elected president of the Cotton Manufacturers Association of South Carolina, succeeding S. Marshall Beattie, who completed his sixth consecutive year as president, at the annual meeting of the association held the week-end of June 4 at High Hampton, N. C. Walter S. Montgomery, Spartanburg, S. C., was elected first vice-president and J. B. Harris, Greenwood, was elected second vice-president. W. P. Jacobs, secretary of the association, was re-elected.

The new executive committee consists of C. E. Hatch, Greenville; J. A. Chapman, Spartanburg; W. T. Twitty, Arlington; Emslie Nicholson, Union; W. P. Hamrick, Columbia; B. F. Hagood, Easley; H. K. Hallett, Paw Creek, N. C.; and George M. Wright, Great Falls.

Carl R. Cunningham, Atlanta, Ga., read the report of the traffic committee, and the association adopted a resolution pledging support of the proposed net weight bill sponsored by Congressman H. P. Fulmer. The measure involves payment of a premium price for the use of cotton instead of jute.

H. H. Willis, Clemson College textile school, spoke on the need for adequate equipment in the new textile building at the school and the association suggested that individual members support the program in any way possible to assure raising of funds.

W. P. Jacobs spoke at length on the need for public relations and pointed out the advantages gained by having a medium to promote such a program. He exhibited clippings from newspapers written to build up favorable opinion concerning the textile industry.

Brief talks were also made by Dr. E. W. Sikes of Clemson College, and John H. Cheatham, president of the American Cotton Manufacturers Association.

New Publications of Textile Interest . .

(These publications may be secured direct from the manufacturer or through COTTON.)

The Johnson Corporation, Three Rivers, Mich. A bulletin describing the new Johnson equalizing boiler feed pump. Also, bulletin describing new model of automatic boiler water control.

Bemis Brothers Bag Company, 2nd Ave. & 51st St., Brooklyn, N. Y. Folder descriptive of *Tite-Fit Tubing*, an economical wrapping in the form of a flexible tubing, having the unique feature of fitting various sizes of objects.

S. Blickman, Inc., Weehawken, N. J. No. 4 in a series of bulletins on stainless steel equipment. This one pertaining to rectangular dye tanks.

Haveg Corporation, Newark, Del. General bulletin 0-1 on corrosion resistant chemical equipment.

Truscon Laboratories, Caniff and G.T.R.R., Detroit, Mich. Bulletin describing the restoration of brick and concrete with *StoneTex*.

Whitin Machine Works, Whitinsville, Mass. *Himalaya Yarns*, for special effects in fabrics. Illustrated circular describing the Triplex three-speed Himalaya yarn attachment for use in spinning cotton, spun rayon, and mixed fibers.

Fairbanks, Morse & Company, 900 S. Wabash Ave., Chicago, Ill. Interesting article in May-June issue of company's house organ dealing with Fairbanks-Morse motors driving machines throughout Great Lakes Thread Company, Detroit, Mich. Well illustrated.

Crompton & Knowles Loom Works, Worcester, Mass. *Promoting the Sale of Replacement Parts*, a reprinted article from *Industrial Marketing*.

Rohm & Haas Company, Inc., 222 West Washington Square, Philadelphia, Pa. Booklet on permanent finishes for textiles, Rhoplex Dispersions, giving a complete range of clear, colorless, synthetic resins for finishing all textile fibers and fabrics. Goes into specifications, method of application, and offers recommendations.

Hatch Textile Research, Inc., 366 Fifth Ave., New York City. Revised price list for making tests.

Gulf Oil Corp., Pittsburgh, Pa. *Full-Fashioned Hosiery Manufacture*, an attractive pamphlet giving a brief, interesting history of hosiery manufacturing, with many large illustrations of the process, and containing recommendations for lubricating full-fashioned machines.

Hill Represents Du Pont in North Carolina Territory

E. M. Hill, 1500 Madison Ave., Greensboro, N. C., is now textile sales representative of the E. I. Du Pont de Nemours & Company, Inc., finishes division, in the North Carolina territory, succeeding F. H. Aberle, who is now with another division of the same company.

New Textile Equipment and Materials

Micrometer Setting Gauge for Grinding Rolls

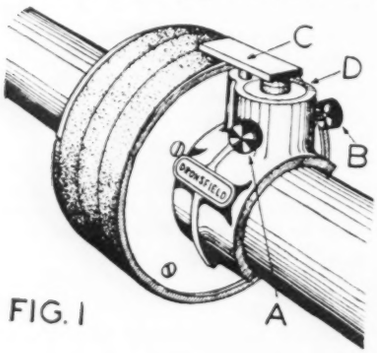


FIG. 1

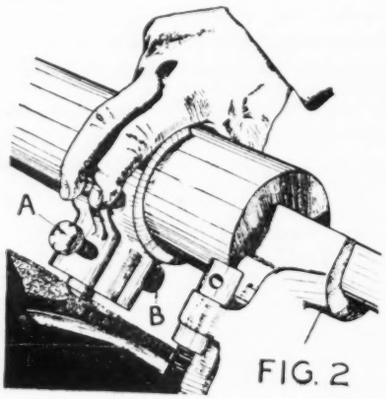


FIG. 2

Dronsfield Bros., Ltd., Oldham, England, have announced an entirely new invention for scientifically setting traverse grinding rolls on cards. It is called the No. 196 micrometer setting gauge for card grinders, and its use eliminates setting "by ear" and the consequent likelihood of setting the grinder too deep, or not deep enough, or obliquely, it is pointed out.

The device consists of a main bracket which is bored out to fit on the 3-inch diameter tube of standard traverse wheel grinders. In use, it is mounted, as shown in Fig. 1, on the grinder tube adjacent to the emery disc, with a pointer on the scale *D* swung round by the screw *A* to the mark 0 (zero) on the graduation face, and locked by the screw *B*. The plate *C* is then pressed down to contact with the emery surface; this contact being established, the screw *A* is locked and the plate removed. To determine the amount of grinding cut, *B* is released and the pointer swung to the desired graduation mark by the screw *A*; then *B* is locked.

The graduations are in 1/1000ths of an inch, and are marked from 0 to 7; thus, for instance, if the pointer indicates, say, 4, the cut given by the grinding disc will be 4/1000-inch.

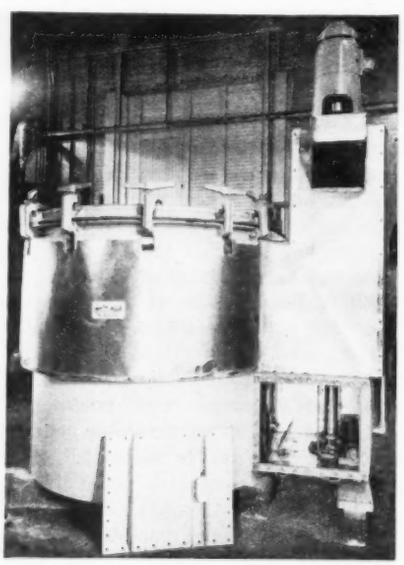
The plunger stud is then used as a feeler (Fig. 2), set to touch the points of the wire surface all across the card. When the grinder is placed in position after this setting, the cut of the emery disc will be equivalent to the amount indicated on the graduation.

The manufacturers point out that the gauge may be used also for testing the surfaces of card teeth for parallelism and cylindricity; and for testing the bare surfaces of cylinders and doffers before grinding with the bare cylinder grinder and, after grinding, to facilitate the alignment of the grinder brackets to the newly-ground surface. For this latter purpose, a longer interchangeable plunger-feeler stud is supplied.

◆

Stainless Steel Stock Dyeing Machine

Riggs & Lombard, Lowell, Mass., have developed a new stainless steel stock dyeing machine of 500 to 600-pound capacity. The main kettle and expansion tank are one single unit, eliminating all outside pipes, valves, fittings, etc., except those required to bring steam and water to the machine and take away the drainage. The pump is submerged in the dye liquor and is driven by a vertical motor mounted on top of the machine. The pump discharges into a duct of large area, welded to the percolating pipe which returns the liquor to the top of the stock and sprays over. The pump, being submerged, requires no packing.



Dyeing machine of stainless steel

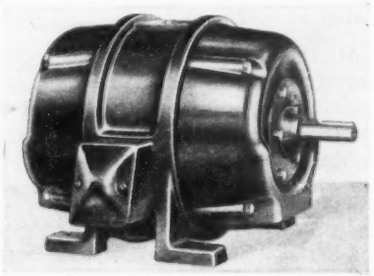
The machine is made throughout of 3/16-inch 19-9 stainless steel plate, all inside surfaces are polished, and the portion above the floor is insulated with rock wool, including the cover and expansion chamber. Unloading is accomplished by electric or air hoist.

The machine is designed for dyeing all types of wool, from a fine noil to a coarse carpet stock; and also for a full load of cotton or rayon. When dyeing the latter, intermediate tills or trays are installed, separating the 500-pound load into five layers of 100 pounds each.

◆

Splash Proof Motors

Diehl Manufacturing Co., Elizabethport, N. J., announce the following as distinctive features of design in a new line of splash-proof motors: Sturdy cast-iron construction, specially impregnated windings, effective baffling system which prevents entrance of water or falling particles, improved system of ventilation to assure low temperature rise, sealed ball bearings accessible for lubrication in all mounting positions. The new motors conform to N. E. M. A. specifications for splash-proof motors and are available in all N. E. M. A. sizes and ratings.

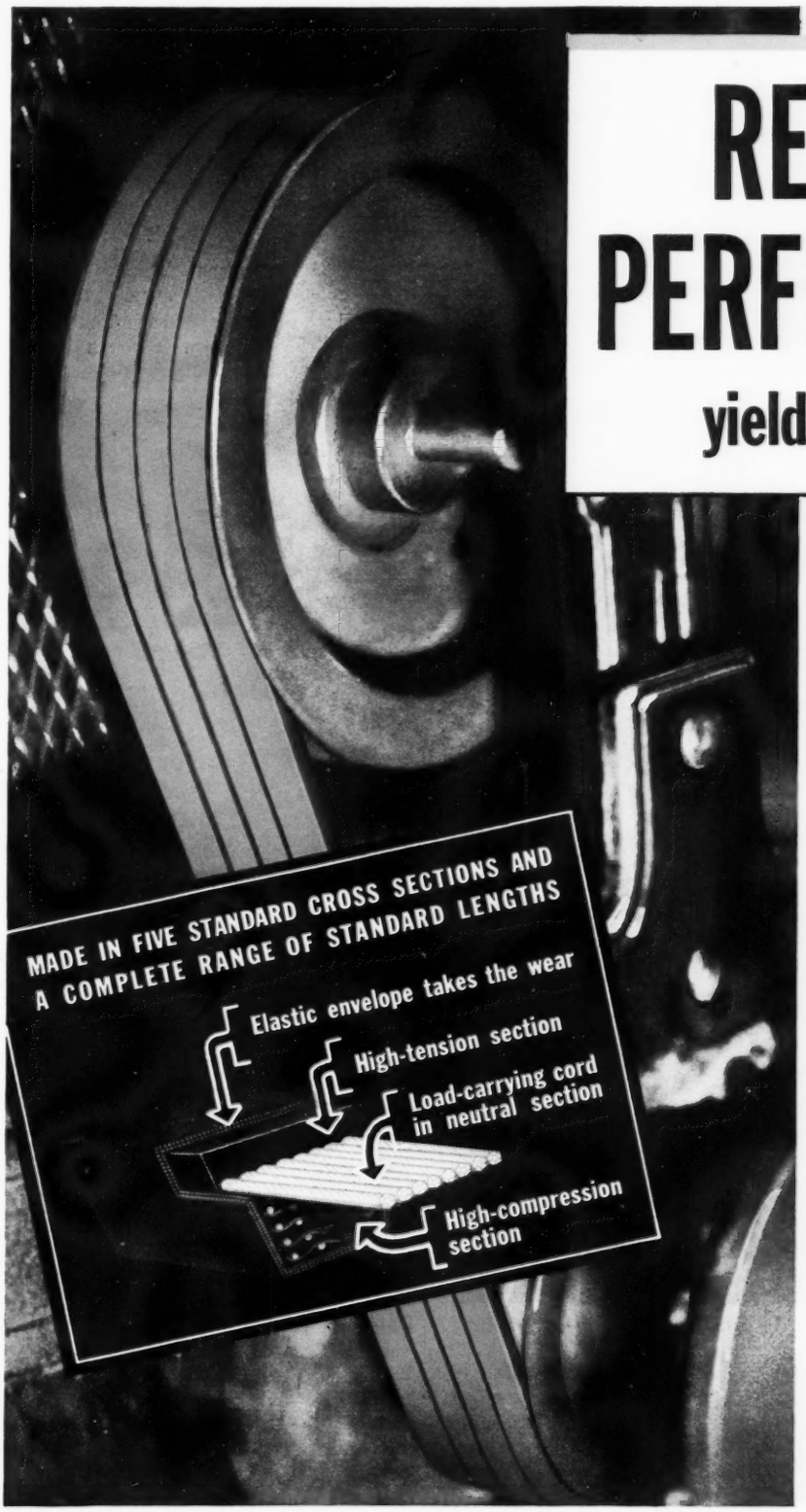


Splash-proof motor

◆

New Rotary Hose

Goodyear Tire & Rubber Company, Akron, Ohio, announce a new improved rotary hose, Style 3154, which has as a new and exclusive feature a third bead wire extending back from each end approximately 5 feet. The hose is designed for service within the 1,500-pound working pressure range, and is of 7,000-pound burst construction. It has a compounded rubber tube, and the body structure consists of multiple plies of extra heavy cotton duck and two distinct layers of bead wire spiralled in opposite directions. Each layer of wire is imbedded in rubber and carefully insulated.


MADE IN FIVE STANDARD CROSS SECTIONS AND A COMPLETE RANGE OF STANDARD LENGTHS
Elastic envelope takes the wear
High-tension section
Load-carrying cord in neutral section
High-compression section

RELIABLE PERFORMANCE

yields LOW COST

HERE'S why it pays to specify the new Goodyear E-C Cord Multi-V Belts for your multiple drives:

Sold in sets, accurately matched in length under proper operating tension.

Uniform cross section conforms to pulley grooves, giving high power efficiency—maintaining even speed.

Heavy endless cord construction combines extreme strength and flexibility with low stretch.

Close-woven fabric cover protects cord section — presents uniform wear surface.

Correctly fitted to your drive by the G.T.M.—Goodyear Technical Man.

The result is a balanced drive that gives you long, trouble-free, efficient and economical performance because there are no loafers, no overloaded belts. Every belt pulls its full share of the load, insuring long life. Let the G.T.M. give you full particulars about these service-proved Multi-V Belts, distinguished by their *green* color. To consult him, write Goodyear, Akron, Ohio, or Los Angeles, California—or the nearest Goodyear Mechanical Rubber Goods Distributor.

THE GREATEST NAME IN RUBBER

GOODYEAR

MULTI-V E-C CORD BELTS

New Hinged "Dust-Tight" Glass Covers

Benjamin Electric Manufacturing Company, Des Plaines, Ill., is featuring a number of outstanding developments in simplified design and weight-saving construction in the new hinged dust-tight covers, which assure easier and quicker lamp renewals and marked economies in maintenance for reflectors installed in locations subject to dust, grime, and smoke, it is said. The hinged type of construction makes for quicker access to the reflector interior and eliminates all danger of dropping glass because the cover is hinged from

New light cover

a band fastened to the reflector bead. The new covers fit all circular Benjamin reflectors having a beaded edge where the lamp does not project below the reflector bead, and are available in sizes for reflectors from 8 to 22 inches.

◆

Albasol Developed

National Oil Products Company, Harrison, N. J., has developed *Albasol No. 1*, a new type soaking treatment for deep pebble rayon crepe, consistent production of which has been a problem for throwsters. In developing this treatment, a number of experimental laboratory products were further tested in repeated trials of actual mill practice.

◆

New Finishing Agent and New Dyestuff Announced

E. I. Du Pont de Nemours & Company, Inc., Wilmington, Del., has developed a new dyestuff color named Ponsol Golden Orange YL Double Paste. The new color is said to be resistant to light, chlorine, washing, and power laundering with chlorine and changes only slightly in tone when given the usual soaping finish. Avitex R is a new finishing agent designed primarily for use on acetate and rayon fabrics. It is also employed to some extent on cotton materials, and it is of interest on rawstock to improve the spinning properties. It is resistant to hard water, hot ironing, and hot calendering. The finish leaves materials free from odor and not discolored. It has no deleterious effect on the light fastness or on the shade of dyestuffs.

◆

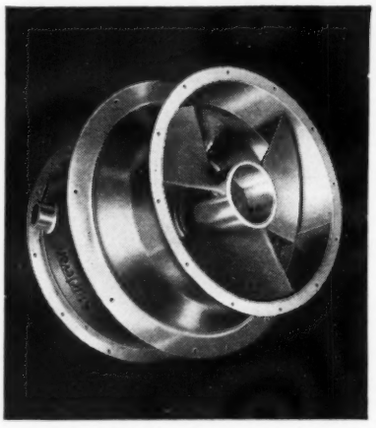
Variable Speed Control

Morse Chain Company, Ithaca, N. Y., has designed a new variable speed control, which is a simple, positive mechanism for governing the speed of output shafts through an infinite number of variations within the range of the unit. With the input shaft operating at the recommended speed of 180 r.p.m., the variable speed control can be quickly adjusted by a hand set with visible dial to deliver from 1½ r.p.m. to 4 r.p.m. through the low speed shaft, or any possible speed in between these limits. It is a self-contained unit and cannot be affected by dust or dirt conditions. There is not a single bolt, nut, or part inside the case which can be loosened and cause trouble. All clutches and main shafts are mounted on needle bearings.

◆

New Slasher Exhaust Units

B. F. Sturtevant Company, Inc., Hyde Park, Boston, Mass., has developed a slasher exhaust unit for textile mill application which has been especially designed to meet vapor exhaust requirements of modern cotton and rayon slashers. Said to be a valuable feature of the new fan is its low power consumption. The fan wheel on the unit is a 3-bladed propeller fan of cast



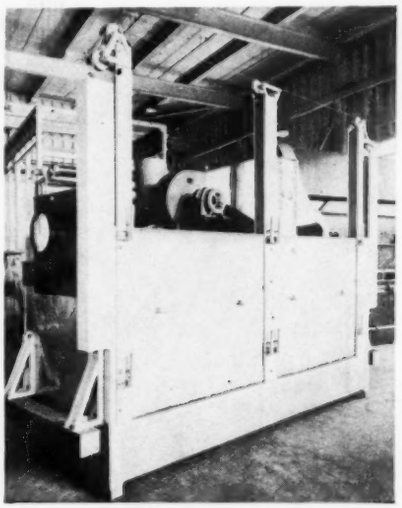
Slasher exhaust

aluminum alloy designed for high efficiency and for operation against duct and wind resistance. Standard units are constructed of heavy gauge steel, painted with two coats of aluminum glyptal acid resisting paint, and suitably braced and stiffened with angle irons. An outstanding feature of the slasher exhaust unit is the self-ventilating motor. The motor is supplied with an internal fan wheel which draws cooling room air through a conduit and blows it into the windings and out into the path of the exhaust air. The motor is designed with a special winding particularly suited for operating in the high temperatures encountered in slasher and dryer installations. It is fully enclosed and mounted within an annular band supported in a thimble casing by means of three steel plate arms. In addition to their use in slasher rooms, the units may be applied to dry can ranges, dryers, dyehouses, etc.

◆

Yarn Steamer

Riggs & Lombard, Inc., Lowell, Mass., have developed a new "Fleet Line" yarn steamer which circulates humidified atmosphere through the truck of yarn under slight pressure to



New yarn steamer

obtain uniform humidity and temperature at all points. The machine, which has a capacity of 4 trucks of 125 pounds of yarn each, is designed for steaming and conditioning all types of yarn, including wool, worsted, cotton, silk and rayon. The machine is equipped with automatic controls; when the trucks are in place, the doors closed and the switch turned, no further manual attention is required until a light flashes to indicate the completion of the cycle.

◆

Davison's Mattress Directory

Davison Publishing Company, 201 East Ridgewood Ave., Ridgewood, N. J., formerly located at 50 Union Square, New York City, has made available the 26th annual edition of the *Mattress Directory*. It contains United States and Canadian manufacturers of mattresses, bedding, cushions, pillows, and upholstered furniture who use cotton felt, cotton batting, cotton waste, linters, hair, shoddy, jute fibers, kapok, excelsior, feathers, or moss. Included also are manufacturers of mattress batting, feld, shoddy, and upholstery tow; dealers in cotton, wool and silk waste, kapok, excelsior, curled hair, and linters. The price of the directory is $4.00.

...and you get more for your money today with the modern roll covering—CORK

TEN years have seen great progress along America's skyways. In modern airliners, travel is swifter, safer, more efficient—and costs are down. This same decade has brought similar progress in the textile industry. Through the benefits of modern roll covering, leading mills are spinning better yarn, spinning it more efficiently—and spinning it at lower cost. One big reason for this progress is that today more than 6,000,000 active spindles in the country are running on Armstrong's Seamless Cork Cots.

Armstrong's Cork Cots save mills money. The initial cost is no greater than that of other roll covering material. And in addition, they last longer. For after their normal period of service, rebuffing makes them new again and again. Still another saving is the low cost of assembling cork cots to rolls.

Armstrong's Cork Cots insure stronger yarn and better running work. Cork cots reduce eyebrowing, cause less end breakage, fewer top roll laps and less clearer waste. They are less affected by hard ends.

Armstrong's Cork Cots are ideally fitted for the exacting job of a roll covering because they are made of cork, a material that has all the physical properties required in a roll covering. Then they are fabricated with precision by Armstrong —uniformity is built right into them —over the entire spinning surface of the cots and throughout their entire wall thickness.

Find out now how your mill can benefit by a change-over to the modern roll covering—Armstrong's Seamless Cork Cots. Let an Armstrong representative show you production figures of mills spinning your range of numbers on cork. Or write to Armstrong Cork Products Co., Industrial Div., Textile Department, 923 Arch St., Lancaster, Pa.

ARMSTRONG'S *Extra Cushion* SEAMLESS CORK COTS

CORK PRODUCTS SINCE 1860

Trimethylamine

Rohm & Haas Company, Inc., 222 W. Washington Square, Philadelphia, Pa., have developed an improved process for the preparation of trimethylamine, either in the gaseous state or aqueous solutions. It is said that for this reason trimethylamine is now a very inexpensive organic base. The new process gives a product of unusually high purity, averaging close to 98 per cent, it is pointed out. Because of its high strength, it forms salts that are neutral or slightly alkaline. The carbonate, phosphate, stearate, silicate, sulfate, lactate, and several other simple neutralization products are stable. Trimethylamine has many possible commercial applications. It can be recommended for the saponification of oils, fats and waxes, esters, and gums.

◆

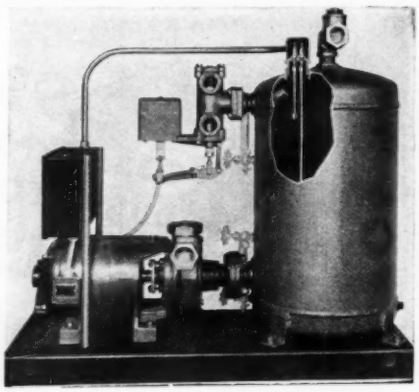
New Textile Tubing

Bemis Brothers Bag Company, 2nd Ave. and 51st St., Brooklyn, N. Y., has developed a new burlap textile tubing which expands and contracts to fit packages of varying sizes. For instance, it is said that a 40-inch tube will closely fit rolls as small as 13 inches in diameter, or as large as 21 inches in diameter, without waste in either case. The new tubing is tradenamed *Tite-Fit Tubing*. According to the company, the potential uses have not been thoroughly explored, but it has already replaced burlap piece goods as a wrapping for textiles, rubber hose, wire, and rugs in a number of plants. To wrap an article in the new burlap tubing, the operator slips the tubing over the top of the package, fastens it with a wire tie at the bottom, pulls up on the sides to remove the slack, fastens with a wire tie at the top, and cuts the tubing off above the top tie. As the tubing is not cut until the entire package is closed all around and all of the slack has been taken out, it is almost impossible for the operator to use more than is required.

◆

Self-Contained Boiler Feed Pump Unit

The Johnson Corporation, Three Rivers, Mich., has announced a new type of boiler feed pump known as the Johnson pressure equalizing boiler feed pump. The basic principle employed consists of first equalizing the pressure in the receiving chamber of the pump unit before pumping its contents into the boiler. The operation is entirely automatic. As soon as the receiver is filled a valve is automatically opened admitting boiler pressure to the receiving chamber, thus equalizing it with the boiler pressure. Simultaneously the pump is started and operates until the contents of the receiving chamber are pumped into the boiler. The equalizing valve is then automatically closed and the pressure vented from the receiver so that condensate may again flow into it. Advantages are said to be that by equalizing the pressure it is merely necessary to pump against the static head of the boiler and therefore a low head centrifugal driven by a low-powered motor can be used; by keeping the condensation delivered to the centrifugal pump under boiler pressure through the equalizing principle, the condensate can be handled at a far higher temperature with a consequent gain in boiler efficiency.



Boiler feed pump

◆

"TuLamp" Transformer

General Electric Vapor Lamp Company, Hoboken, N. J., has designed a new *TuLamp* transformer to operate two 400-watt type H mercury lamps at peak efficiency and at 90-95 per cent power factor. The new unit supplements the standard line of GE transformers for mercury lamps. Use of the double-duty unit is said to permit a reduction of 20 per cent in transformer costs, and results in additional installation saving. Transformer losses are reduced to 30 per cent in comparison to two single-lamp units, it is pointed out. The new unit is 1½ inches wider and somewhat heavier than the single-lamp transformer, but is practically the same in general design. Starting currents using these transformers are below the normal operating current, so that no provision need be made in the wiring to take care of excess starting values. Using the new unit, one lamp starts and reaches its full efficiency before the other lamp. With as much as a 40-volt drop in the circuit, one lamp will continue to burn. Should one lamp burn out, the other lamp will operate normally without injury to the transformer.

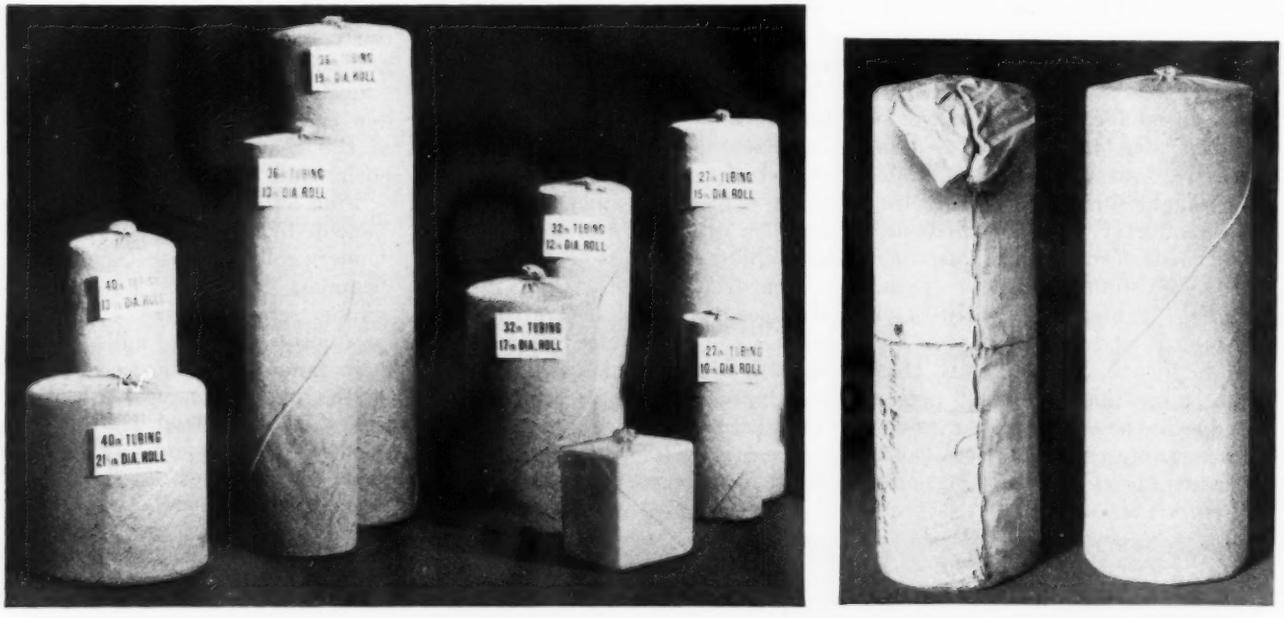


Illustration at left shows sizes of new textile tubing; at right, a comparative illustration with ordinary bagging.

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NEW ENGLAND REPRESENTATIVE: EDMUND H. LELAND, CHAMBER OF COMMERCE BUILDING, BOSTON, MASS.

New pH Instrument

A new Cameron pH meter has been announced by the Wilkens-Anderson Company, 111 N. Canal St., Chicago, Ill., with several features of interest to textile dyeing and finishing plants. Determination of the pH condition of the water may be read quickly and accurately on the new dial, according to the manufacturer. Also a particular convenience to industrial laboratories is that the complete sample in the original beaker or bottle may be used to avoid danger of pouring off only the upper portion.

◆

Dry Size in Blocks

Two new dry-sizings in standard size blocks are being introduced by the textile chemical division of Dixie Chemical Products Co., Ltd., Birmingham, Ala. The company declares that the use of the one-pound and five-pound blocks is convenient and insures uniform results. They offer the Dixie Supreme block sizing for general work and particularly on high speed slashers to overcome foaming. They recommend block sizing PF where goods are to be pyroxylin-coated or on goods to be desized such as velvets, corduroys and soft-finished goods, and with vat and indigo-dyed warps. Both products are said to prevent bleeding of colored warps on the slasher.

◆

New Colors

Carbic Color & Chemical Company, Inc., 451-453 Washington St., New York City, have announced an addition to the company's group of very fast Indigosols; it is Indigosol Green 13G, recommended for both printing and dyeing. It is said that the new color can be resisted with the usual printing resists or discharged in pale dyeings with alkaline Rongalite CL discharge.

◆

Cored and Solid Bronze Bars

Bunting Brass & Bronze Co., Toledo, Ohio, have announced a new line of cored and solid bronze bars, Bunting precision bronze bars, made of a specially developed alloy, composed of 83 per cent copper, 7 per cent tin, 7 per cent lead, and 3 per cent zinc—designed to produce improved strength and anti-frictional qualities.

The bars are made by a new casting technique to produce uniformity as well as strength and anti-frictional qualities. The new bars, in addition to a machined outside diameter, have the cored sizes machined in the bore to the same accurate dimensions commonly applied to the outside diameter. Enough stock is left on the O.D. and I.D. to finish a bearing from the bar to the size stamped on the bar by taking off only a 1/64-inch cut.

The new bars are plainly stamped with the size to which a piece may be cut; this stamping runs the entire length of the bar, showing the bar size regardless of how much has been cut off. Over 240 sizes of these fully-machined cored and solid bronze bars are available from stock.

◆

"General Discussion on Lubrication"

The American Society of Mechanical Engineers, 29 West 39th St., New York City, has published an American edition of the book, *General Discussion on Lubrication*, which was sponsored in London last year by the Institution of Mechanical Engineers in co-operation with 53 other societies. The subjects embraced cover adequately the various forms of lubrication, such as the performance of oil rings, journal and thrust bearings, rubber as a material for bearings, heavy-duty bearings of phenolic plastics, bearing film and friction measurements, surface temperature on gear teeth, extreme-pressure lubricants, lubrication of chains, physical properties of lubricants, and many other subjects. The book carries a vast amount of information that will prove helpful to the mill man, the engineer, master mechanic, and lubricating engineer, and will serve as a reference volume which will be an asset to the technical library. It sells for $6.50 per copy.

◆

50% Sulphonated Oil

Quaker Chemical Products Corp., Conshohocken, Pa., announce the introduction of a new product, Quaker XX Oil, a 50 per cent sulphonated oil for use as a leveling agent, softener or plasticizer in dyeing, finishing, wetting-out and other textile processing.

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

New Plants for American Cyanamid

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, New York City, has purchased a site on the terminal railway of the Alabama State Docks Commission, Mobile, Ala., for the construction of a chemical plant, the chief product of which will be sulphate of alumina. This company will also build a plant at Savannah, Ga., for the manufacture of miscellaneous heavy chemicals, including sulphate of alumina.

◆

Howell District Manager of Acme Steel

George P. Howell has been appointed district manager of the Strip Steel division of Acme Steel Company, Chicago. His territory includes Wisconsin and upper Michigan, and his headquarters are in Milwaukee. Mr. Howell is a former president of the Milwaukee Association of Purchasing Agents and a former director of the National Association of Purchasing Agents.

◆

Curtis Sales Promotion and Advertising Manager of Shell Union

Harold L. Curtis has been appointed sales promotion and advertising manager of the Shell Union Oil Corporation, 50 W. 50th St., New York City, succeeding Fred C. Foy, who has resigned to become vice-president in charge of eastern sales for Wilding Picture Productions, Inc. Mr. Curtis formerly was manager of the metropolitan New York division of the Shell company, and had been connected with the company for over 15 years.

◆

Howard General Manager of Fairbanks-Morse Plant

A. C. Howard, formerly assistant general manager of the Beloit, Wis., plant of Fairbanks-Morse & Company, Chicago, Ill., has been appointed general manager of the same plant, succeeding A. E. Ashcraft, who is now vice-president in charge of manufacturing. Mr. Howard has been with the company for 22 years.

◆

Officers Elected by Throwsters Research Institute

The Throwsters Research Institute, 468 Fourth Ave., New York City, has announced the election of William R. Rossmassler, Sanquoit Silk Manufacturing Company, as president. Other officers are Neil V. Butler, of Richard V. Butler, vice-president; Arthur G. Schautz, Grove Silk Company, treasurer; and George A. Urlaub, executive director.

◆

Brandt Represents Onyx in Cuba

Alfred Brandt has been appointed sales and technical representative for The Onyx Oil & Chemical Company, Jersey City, N. J., in the company's Cuban territory. Mr. Brandt, who recently joined Onyx, has had a long and thorough experience in all branches of textile processing and finishing.

Textile Products of Dayton Rubber Mfg. Co.

The Textile Products Division of The Dayton Rubber Mfg. Company, Dayton, Ohio, has announced the development of several special textile products now available, and simultaneously have announced the appointment of J. O. Cole as sales representative and field engineer for these products in the South.

The company has a complete line of loop pickers for Draper looms, and a limited line of sizes on reversible drop box pickers for Crompton & Knowles looms; as well as a complete line of bunters and bumpers and lug straps for all looms. The line includes two types of rubberized fabric hold-ups, one a regular die-cut hold-up and the other a full molded hold-up for especially heavy service and requirements.

Mr. Cole

Dayton announces also that the department is conducting tests on a new type of loom checking mechanism, cam rollers, spinning cots and other products which will be offered as perfected.

Mr. Cole, a graduate in textiles from Georgia Tech, has recently been associated with the Koroseal department of The B. F. Goodrich Company. Previously he had mill experience with Tennessee Eastman Corporation and Standard-Coosa-Thatcher Company.

H. M. Bacon, development manager of Dayton's textile products division, is a graduate in chemistry from Reed College, Portland, Oregon. He has had five years' experience with The B. F. Goodrich Company and Gates Rubber Company, and from June, 1932, to December, 1937, was associated with the Denman Rubber Co., Warren, Ohio, having joined Dayton the first of 1938.

◆

All Texas Textile Graduates Located

All nine of the 1938 graduates of the textile engineering department of Texas Technological College, Lubbock, Texas, have been placed in southern textile establishments. Graduates, and their connections, are as follows:

Dwight Epperson, of Cleburne, Texas; Avondale Mills, Sylacauga, Ala.; Frank Eddins, of Marlin, Texas, Love Field Mill of Texas Textile Mills, Dallas; W. C. Zerwer, of Clovis, N. M.; Darrell Branton, of Ralls, Texas; Woodrow Davidson, of Portales, N. M., Bibb Mfg. Company, Columbus, Ga.; Kendall Onstott, of Lubbock, Texas, William H. Jones Co., Dallas, Texas; Milton Hallmark, of Loraine, Texas, New Braunfels (Texas) Textile Mills; Charles Wilson, of Tulia, Texas, Dixie Mercerizing Company, Chattanooga, Tenn.; and Jack Towery, of Plainview, Texas, Brenham (Texas) Cotton Mills.

Obituary

WILLIAM GAFFNEY HARDY, superintendent of carding and spinning at the Merrimack Manufacturing Company, Huntsville, Ala., died of pneumonia May 29. He was 42 years old. Mr. Hardy, who was born and raised near LaGrange, Ga., served as superintendent for 6 years at the High Shoals plant of the Manville Jenks Company, Gastonia, N. C., before accepting the position at Merrimack.

W. H. SNIDER, formerly manager of W. H. Snider Hosiery Mill, High Point, N. C., was fatally burned in the fire which destroyed the Terminal Hotel, Atlanta, Ga., on May 16.

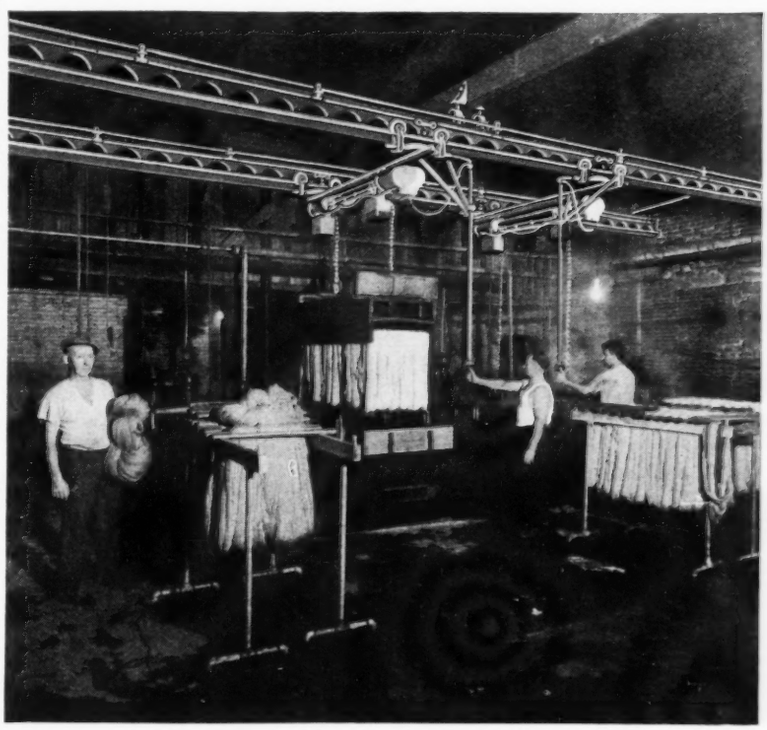
JAMES M. FOWLER, 75, for many years prominent in the textile industry in Alamance County, N. C., passed away at his home April 30. Mr. Fowler was at one time superintendent of the E. M. Holt Plaid Mills.

EUBERT LYERLY, age 60, of Hickory, N. C., passed away May 28. He was head of the Elliott Knitting Mills and the Lyerly Full-Fashioned Hosiery Mill, both located at Hickory.

THOMAS MCCONNELL, 70, president and general manager of the Hampton Company, East Hampton, Mass., and president of the Hampton Spinning Company, Clover, S. C., passed away May 24 in Miami, Fla.

CLEVELAND TRAMRAIL

MATERIALS HANDLING EQUIPMENT



SKEIN DYEING

● There is Cleveland Tramrail equipment for this method as well as the several other methods employed by textiles.

● The results of our accumulating knowledge of improved handling methods in this field will be given you when desired.

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PERSONAL NOTES

about Men You Know

Mr. Williams

Mr. Daughdrill

Mr. Edge

These three Callaway Mills executives were promoted in a recent re-organization of the company's manufacturing and sales divisions. R. D. Williams, Jr., formerly in charge of consumer products sales, is now vice-president in charge of all sales, with headquarters at 345 Madison Ave., New York City. J. Hal Daughdrill, formerly superintendent of the Manchester (Ga.) plant, is now general superintendent of all of the company's plants, with headquarters in LaGrange. A. B. Edge, Jr., formerly secretary, is now vice-president in charge of purchasing. These and other changes in Callaway personnel were announced on page 74 of June COTTON.

HERMAN CONE, for the past 21 years treasurer of the Proximity Manufacturing Co., Greensboro, N. C., has become president, succeeding BERNARD M. CONE, president since 1917, who now becomes chairman of the board. A. C. HOLT, assistant treasurer, is now treasurer, and JULIAN W. CONE was elected vice-president.

WILLIAM ZYLSTRA, who recently became superintendent of the Spencer Mill, Spindale, N. C., was formerly general superintendent of the Booth Mfg. Co., New Bedford, Mass. EUGENE H. TIMANUS, formerly of New Bedford, is treasurer at Spencer.

J. L. BRANNAN, formerly overseer of carding, spinning, and spooling at the Durham (N. C.) Cotton Manufacturing Company, has become overseer of these same departments at the Hermitage Cotton Mills, Camden, S. C., succeeding JOHN JORDAN, who passed away April 28.

EDWARD S. TENNENT, JR., whose father was purchasing agent for a number of mills throughout the South before his death during the latter part of May, will continue the offices of the purchasing company under the name of Tennent & Thackston, 720 Montgomery Building, Spartanburg, S. C. M. K. THACKSTON, associated with Mr. Tennent for two years, formerly was with Montgomery & Crawford Supply Company.

HARRY JACKSON, who was graduated from the Alabama Polytechnic Institute, Auburn, Ala., in the Class of 1938, with a BS degree in mechanical engineering, has joined the force of the Morton Machine Works, Columbus, Ga., of which his father, S. W. JACKSON, is president.

MILDRED G. BARNWELL, formerly executive assistant of the Southern Combed Yarn Spinners Association, with headquarters in Gastonia, N. C., has been elected executive secretary of the Association, succeeding FRED M. ALLEN, who resigned April 1.

MARVIN B. SMITH, JR., vice-president of Burlington Mills Corporation, has resigned his position after 10 years of service with the company.

J. F. BRIDGES, formerly secondhand, has been promoted to overseer of carding at the Fairfax (Ala.) Mill of the West Point Manufacturing Company, succeeding the late J. L. BOWLES.

J. H. ROUNTREE, who for some time has been office manager of the Covington (Va.) Weaving Company, has been made manager of the Roanoke Weaving Company, Vinton, Va.

J. E. CALDWELL has retired from his position as overseer of the cloth room at the Langdale (Ala.) Plant of the West Point Manufacturing Company after 30 years of service at that mill. He is succeeded by L. F. BLEDSOE.

M. F. SPRINGFIELD, formerly secondhand in weaving at the Drayton (S. C.) Mills, has become overseer of weaving at the Kershaw (S. C.) Plant of the Springs Cotton Mills.

V. D. SNYDER, formerly overseer of weaving, Drayton (S. C.) Mills, has been made overseer of weaving at the Victor Plant, Victor-Monaghan Company, Greer, S. C. He is succeeded at Drayton by E. B. LAURENS, formerly overseer of weaving at the Beaumont Manufacturing Company, Spartanburg, South Carolina.

FURMAN ABERNETHY, formerly connected with the Grasselli Chemical Company, has been appointed special representative in the textile painting service of the Pittsburgh Plate Glass Company and will make his home in Charlotte, N. C. Mr. Abernethy has recently been connected with the Newark, N. J., factory of the Pittsburgh Plate Glass Company.

R. J. MCCAMY, formerly with the Pepperell Manufacturing Company, Lindale, Ga., has accepted a position with the Southern Dyestuff Corporation, Charlotte, N. C.

S. J. ADAMS, formerly superintendent of the Spencer Mills, Spindale, N. C., has become associated with the Burlington Mills Corp.

L. H. FERGUSON, formerly with the Ware Shoals (S. C.) Manufacturing Company, has become night superintendent of printing at the Rock Hill (S. C.) Printing & Finishing Company.

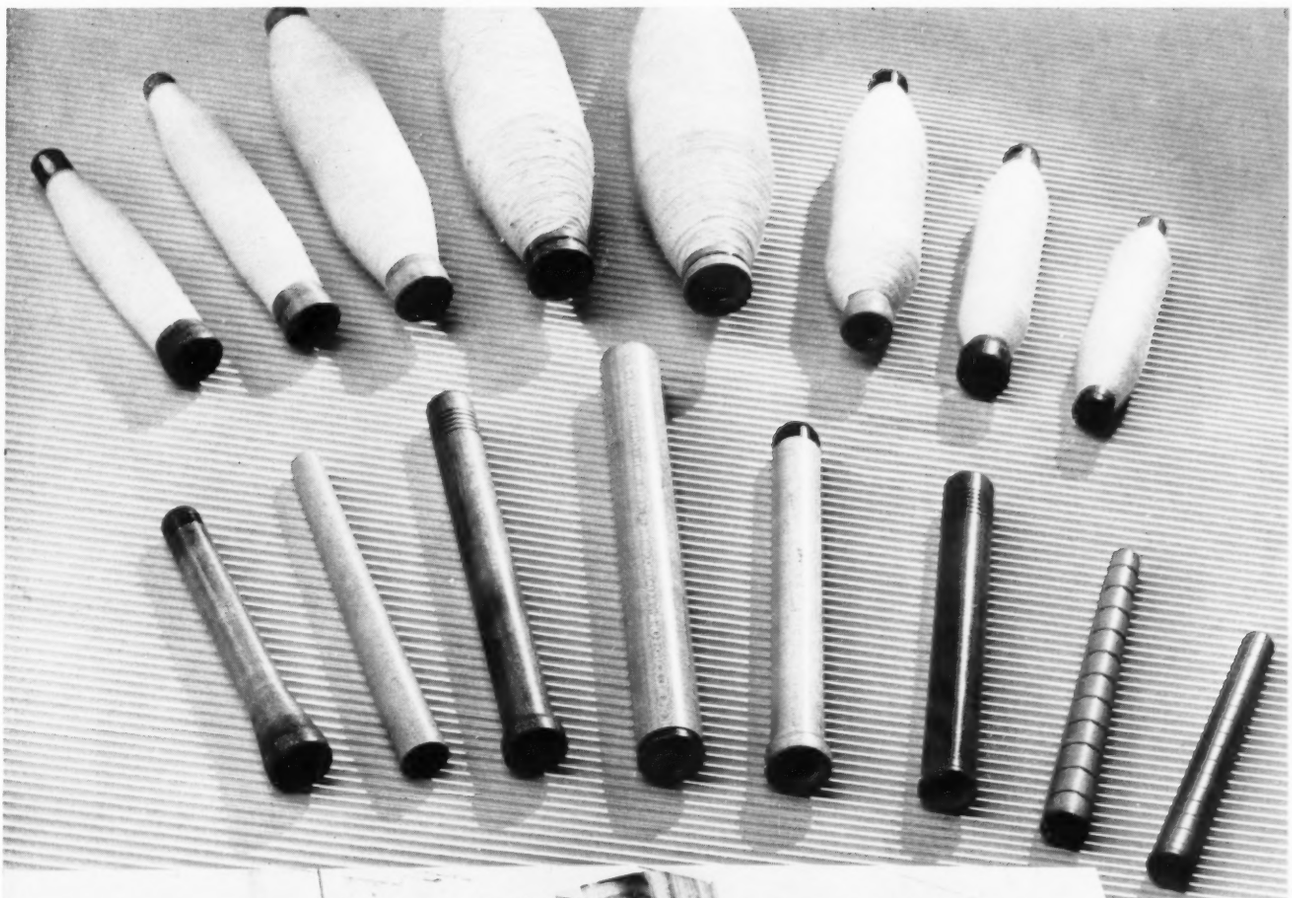
ANDREW CAVANAUGH, formerly superintendent of the four mills of the Berkshire Fine Spinning Associates, Adams, Mass., has been transferred to the Providence, R. I., mills of the company.

C. W. GEIER has become superintendent of the Pinehurst Silk Mills, Hemp, N. C., succeeding W. R. ROSENDALE, resigned.

ARTHUR B. COOKE, formerly with Celanese Corporation of America, has become associated with Callaway Mills, with plants at LaGrange, Ga., and is handling the spun rayon branch of the fabrics division, under the direction of W. LINTON HOWARD.

IRVING LEWIN, formerly connected with Duplan Silk Corporation, Hazleton, Pa., has been made general superintendent of the Cleveland Cloth Mills, Shelby, N. C., succeeding T. H. BURKHARDT, resigned.

(*Obituary items on page* 79.)



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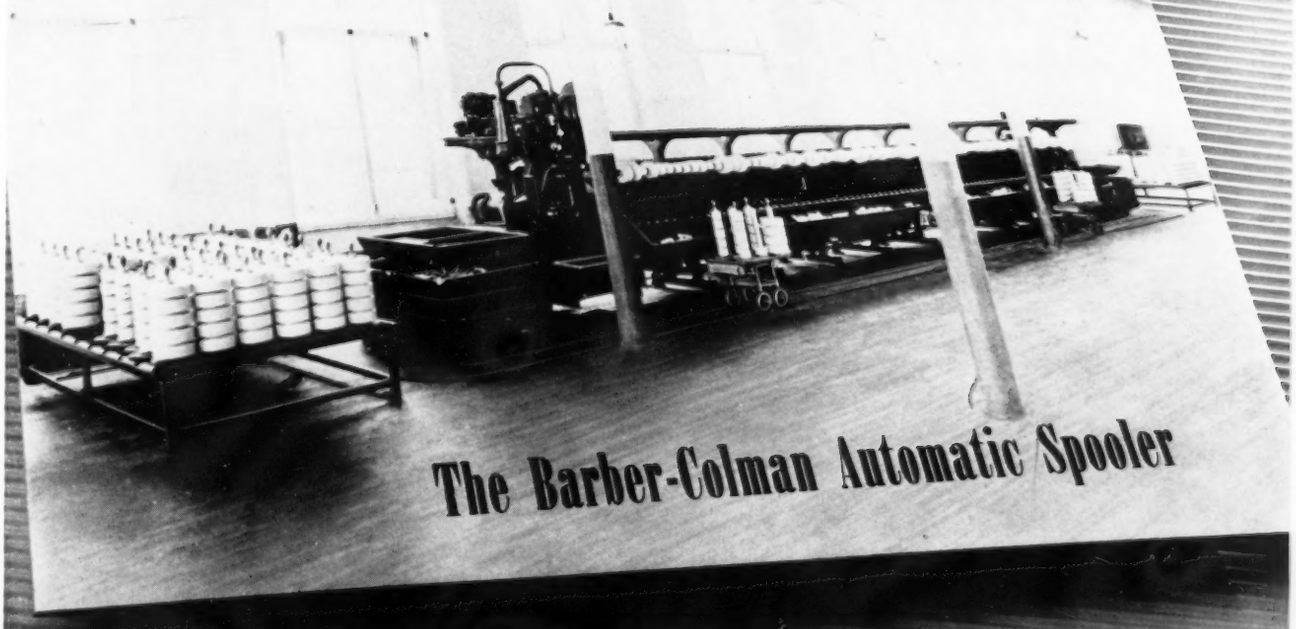

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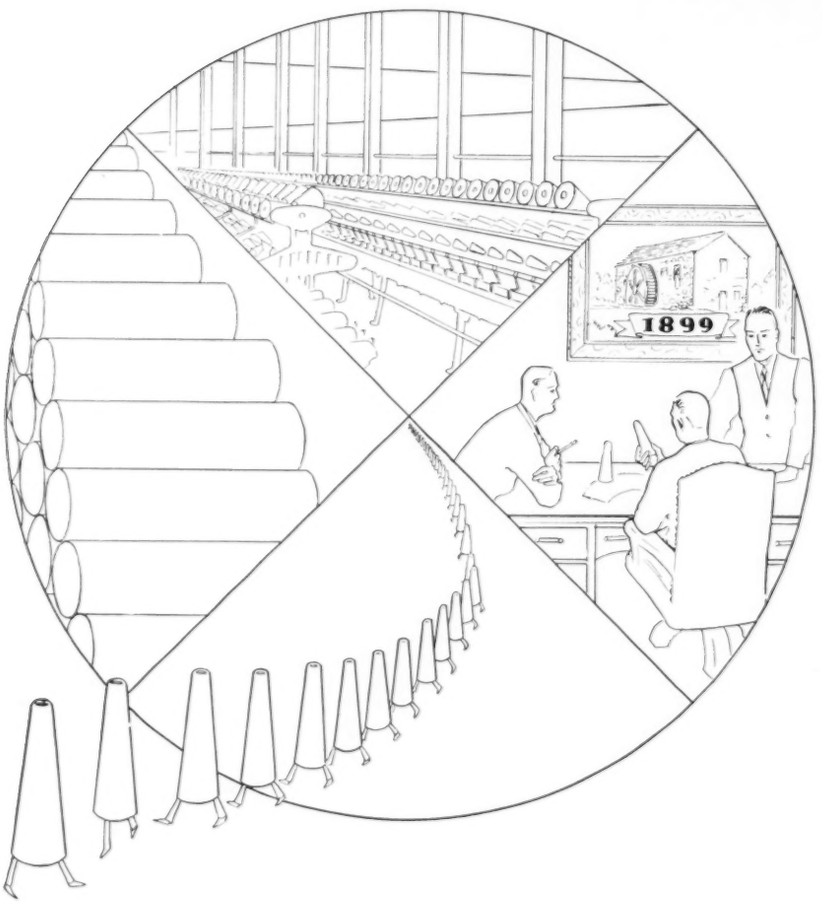

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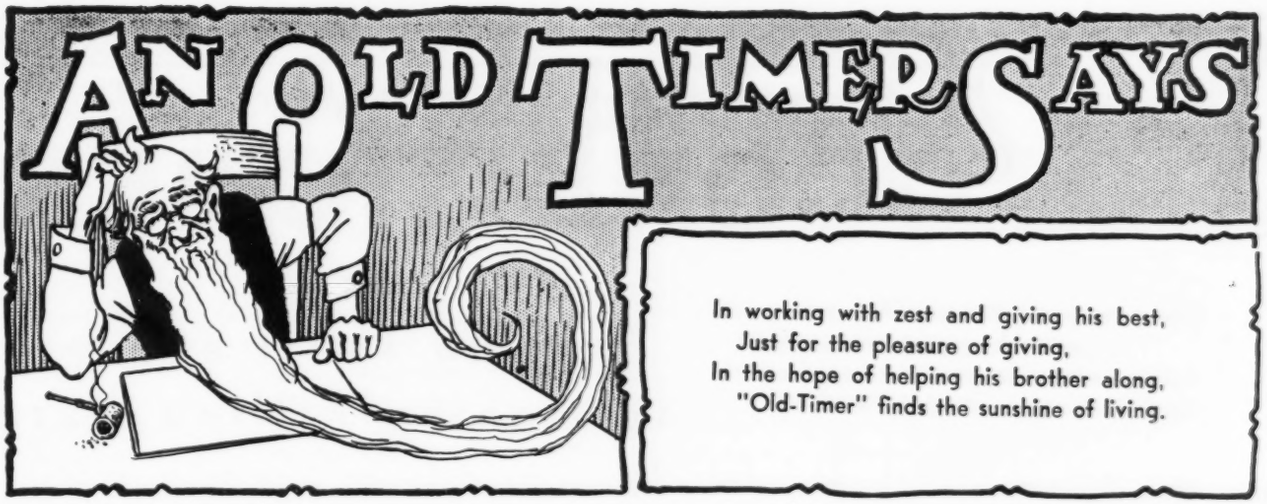
AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

"What Is Your Boy Going to Do?" (Part 2)

(Last month, OLD-TIMER *and* JIM *started arguing as to what is the best profession for a young man to choose under present conditions. In that installment,* OLD-TIMER *was strong for the textile business, and got to talking about what opportunities it presents. This month,* JIM *asks him a stiff question, and starts the old gentleman really to revealing where he thinks the possibilities for the future are the greatest for young men just starting out.)*

(Since this article is written in conversational style, it should be borne in mind that these paragraphs in regular type represent OLD-TIMER'S part of the conversation; and that those paragraphs in italics represent JIM'S part.)

O. K., OLD-TIMER, *you are so enthusiastic about starting young men in the textile business, let me tell you about a conversation I heard not long ago. One man was bragging about what a good investment he had in some bank stock (he was a cotton mill superintendent). The other man (a banker) was explaining to the same little bunch of fellows who were sitting around the lobby of a hotel in Florida, that he had received two extra dividends that year (1937) on his cotton mill stock and that was good enough for him. Why in heck didn't that cotton mill man put his money into cotton mill stock and why didn't the banker put his money into a bank?*

That's just one of the freaks of human nature, JIM, which also does not explain why most of us see the good side of the other fellow's job and the bad side of our own jobs. Remember we wrote an article on that very idea one time; I explained where my friend Webster and I were sitting on a park bench one Sunday afternoon when a young fellow went by with his sweetheart, in a new buggy, and driving a fine looking horse, and Webster said to me, "OLD-TIMER, why can't you and I have money enough to be having a good time like that?" I never did explain to Webster that the young man in the buggy boarded at the same place I did and had borrowed $1.50 from me Saturday afternoon to hire that horse and buggy. You see, JIM, we can't say that either the mill man or the banker was showing any out-of-the-ordinary judgment in his investments, nor that they were showing bad judgment, because both of the investments referred to turned out to be good investments; it is a fact, however, that many men will not invest in the business about which they know the most.

That's my point, OLD-TIMER. *Maybe all this advice you are trying to give overseers and superintendents about how to start their sons off in the textile business will fall upon deaf ears; they may be so sick of the mill business that they want their boys to go into some other kind of work. Now if you had to advise a man how to prepare his son for something besides the textile business what would you say?*

Well, JIM, I'd do my darndest to get any mill man to put his son in a line of work where the father could be of the most service to his son, not only in getting him started, but certainly where he would be most helpful to him after he got his first overseer's job—

Just a minute, OLD-TIMER, *you know as well as I do that there are only a few young men who will take advice from a parent; in fact, most of them will listen to anyone else and take advice from them before they will listen to the old man. Now what advice would you hand out to such a parent?*

Looks like you have got me, JIM, because I am frank to say that I do not have enough definite knowledge about any other profession to feel that I could actually give advice along those lines. Of course I can tell you what my judgment is; I can tell you what I would advise my boy to do in case I had one and he did not want (and could not be persuaded) to go into the textile business.

That's it, OLD-TIMER, *that's my question put in another way, so let's have it.*

O. K., JIM, now don't start laughing at me before I get a good start, because I am going to say some things that will sound very foolish indeed to you, and I want to preface those statements by reminding you that most people who read Jules Verne's predictions several years ago laughed at practically every one he made, but those same people have lived to see many of them come true.

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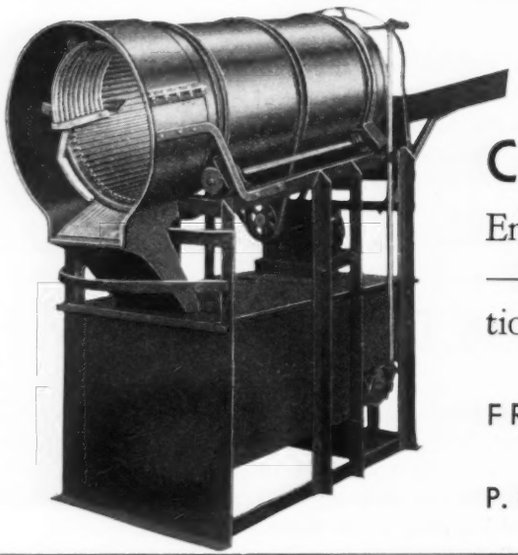

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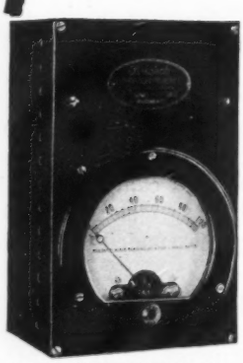

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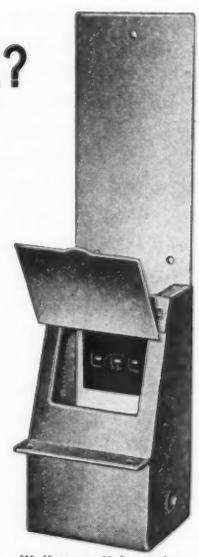

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I remember writing an article in 1906 in which the prediction was made that future cotton mills would be built mostly of glass walls and there would be *no windows to open.* The inside of the mill would be air-conditioned. At that time only a few mills even had humidifiers in card rooms; a few more had humidifiers in carding and spinning. So you can realize that many of OLD-TIMER'S readers laughed at him. There were two other predictions made in that article which have come true. By the same token, only a few years ago you would have scoffed at the prophecy that a chemist, a negro chemist at that, would be able to produce from the common peanut such a large number of foods, medicines, and, to cap the climax, apply a product of this same lowly peanut to the treatment of infantile paralysis. Neither would you have believed that in the life time of one man, Dr. Herty of Savannah, Ga., would the prolific southern pine be converted into a fine grade of paper and that plants costing millions of dollars would be at this writing under construction, with the assured prospect of developing a new industry here in the South which should and will greatly enhance the value of pine timber land and soon be giving thousands of people work in a new industry. The brains of one man will bring millions of pay roll dollars to the Southland. If space would permit, we could cite illustration after illustration to make you realize the thousands of things which we now take more or less for granted, that you would not have believed possible only a few years ago. Only a slight perusal of the few past years will give the most skeptical mind cause to realize that we are just beginning to find out a few things, and naturally, OLD-TIMER thinks of textiles, textile machinery, cotton seed, etc., when such ideas as referred to are being discussed.

In a humble effort to answer your question, JIM, as to what an overseer or superintendent should advise his son to prepare and educate himself for, providing he has definitely made up his mind that he does not want the boy to follow textile manufacturing, my first thought is chemical engineering, and, naturally, in trying to think of what would be a product most adaptable to chemical research, textiles again look to me to have almost unlimited possibilities; first, because we are manufacturing textiles so nearly like we have been manufacturing them for the past 40 years and using a raw product in practically the same way as it was at the beginning of history. Then, when you stop to think how flexible or adaptable that raw product has already been proven in such widely manufactured results as gun powder and silk (synthetic), well, it seems to an old-timer that the future possibilities for the chemist to find new uses, new products, new manufacturing methods and a thousand other new things for cotton is practically inexhaustible.

From a practical standpoint we all know that the majority of inventions, discoveries, etc., are a result of the imagination of the brain. I believe it was the late Arthur Brisbane who often pointed out, in his writings, that anything imagined by the human brain is possible of being accomplished. The first thought which such reasoning brings up, especially in regard to the cotton fiber is, that its production is too expensive. Even with cotton at the extremely low price of seven or eight cents per pound, which large growers claim is below cost of production, it is still far too expensive to open up an unlimited field for the chemist when we try to visualize the varied products with which the cotton fiber is capable of competing, if the fiber could be produced or grown for say two or three cents per pound. Now if you know anything about farming, just hold your laugh or criticism of that statement a few years, for it is entirely possible that some one will find a way to do it.

For example, why is it necessary to plant cotton in rows and then go to all the expense of thinning it out by hand with a hoe, then the expense of plowing it several times, and, finally, gather it in in the expensive way in which it has to be gathered? And then to add more expense by baling it with expensive ties and burlap into a bale that takes human labor every time that bale is shipped or stored?

Someone is going to work out a practical way to sow the cotton seeds like wheat or other small grain is planted by machinery, where *one* man will be able to do the sowing in a few days for a whole farm. The sown seed will of course need no thinning, no plowing, no hand picking of the cotton.

Yeah, I heard you when you said that the gathered cotton sure would be a mess, full of leaf, and other foreign matter.

Sure it will, but stop and think how we learned to make 30s and 40s yarns, and fairly good print cloths, out of thrashed cotton, and even sledded cotton. This should make you realize that Mr. Machinery Builder will find a way to clean the cotton fiber much better than they cleaned thrashed and sledded cotton, so it will be suitable for manufacture, regardless of how it is gathered. It is also possible that in the not far distant future you will see large warehouses full of loose cotton; no baling will be necessary. Cotton is too easily handled with air suction pipes to continue being expensively baled like we are doing today. Very likely the baling and consequent expensive shipping and handling will be cut out before the method of growing is radically changed. Think how much quicker a railroad car, built probably three or four times as long as the present box car, can be loaded and unloaded by large suction pipes, than it can be unloaded by the present crew of negroes with hand trucks. The whole procedure of baling and handling cotton is an expensive, bulky and awkward process to which no one seems to have given much thought as to its improvement. When the farmer hauls his cotton to the gin the whole process should be over with right there, so far as the farmer is concerned.

There is a whole bunch of other ideas right along these lines that we could point out, and which would greatly reduce the cost of cotton production, but we can see that cold-blooded editor of ours frowning now at the length of this article; therefore, we must hurry along and get down to visualizing the possibilities which our prospective chemist will have before him when cotton is produced so darn cheap that it can compete with any and all of the other products which are now causing the best minds to think along the lines of

(Continued on page 95.)

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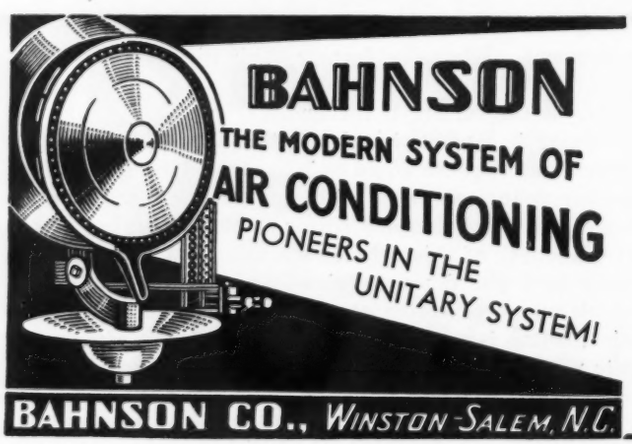

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HOW OTHER MEN MANAGE

Comb Box Lubrication

(An article on the subject of comb box lubrication appeared on page 97 of the June, 1938, issue of COTTON. In connection with this article, it was called to our attention by a well-known lubricating engineer that regardless of the type or viscosity of the oil used in the comb boxes, the boxes should be thoroughly cleaned out at regular intervals—at least once a year. —The Editors.)

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 6826", who has asked a number of questions on comb box lubrication on cards, I will give my experiences and opinions.

1. Almost all comb boxes on cards are running at practically the same speed as when the card was installed. We believe this is too high, especially since all of us that could do so have cut the production of the card and the speed of the doffer. The comb box would last much longer and make less noise and use less oil if the speed were reduced to the point that is only necessary to do good work.

2. A higher temperature in the comb box does not indicate that more power is being consumed, though a higher temperature does evaporate oil faster.

3. We oil the comb boxes about every 250 hours.

4. In trying to determine the type oil to use, we ran a test on 10 cards for each type of lubricant. The comb boxes were removed and cleaned thoroughly with gasoline. At the same time we made sure they were in good condition. We filled the comb boxes with new oil and attached a tag with the date on it to each card. The comb boxes were examined weekly and an account was kept of the amount of oil added each time. Thermometers were placed in the boxes at regular intervals to determine which type of oil was running the hottest. High temperature will cause one oil to evaporate quicker than another oil that is running at a lower temperature. Boxes should run 200 to 300 hours before needing a small quantity of oil added. Most oilers put too much oil in the comb boxes. We took a small snuff box and cut it down to hold just the amount of oil a box should need in three weeks or 220 hours and we required the oiler to use this measure. If a box were found to require more than the quota of oil, this was reported to the card grinder.

5. We use a compounded oil in our comb boxes.

6. We have examined our comb boxes and found sludge and gum, and we immediately cleaned it out.

7. Oil used in the comb boxes evaporates. The quantity of oil in the box affects the temperature—the more oil in the box the lower the temperature will be.

8. I think every man running a card room owes it to himself and to his company to make a thorough test to prove which oil is best for his local conditions. You can't always depend on what the other fellow says.

CONTRIBUTOR NO. 6835

◆

EDITOR COTTON:

We have very little information on comb box lubrication. We did find that compound oils used in the comb boxes gummed them up and stopped up the grooves, and they had to be taken to the boiler room and burned out. After this the boxes were filled with a straight run mineral oil and a little added each day. This keeps the oil replenished and there is no trouble except that some of it gets out at the ends each day and goes on the floor. At the present we are testing a heavy dynamo and motor oil in the comb boxes, but have not been running it long enough to get a conclusive test. It runs smoothly, remains at a low temperature, and does not splash—at least these are our observations so far.

CONTRIBUTOR NO. 6836

◆

EDITOR COTTON:

I wish to submit herewith my answers to questions asked by "CONTRIBUTOR NO. 6826" concerning comb box lubrication on page 128 of the May issue of COTTON.

1. *What is the speed of the pulley on the comb box?* 1450 r.p.m. *The average speed?* 1450 r.p.m. *The maximum speed in the room?* 1480 r.p.m. *The minimum speed in the room?* 1380 r.p.m.

2. *What is the difference between the temperature of the comb box and the room temperature?* When the weather is hot there is around 33.7 degrees difference between the temperature of the comb box and the room temperature. *The average difference?* 33.7 degrees. *The maximum difference?* 35 degrees. *The minimum difference?* 33 degrees. *Is this temperature difference an indication of the power required to drive the comb?* Yes. *That is, does a higher temperature indicate more power is being consumed?* Yes, due to throwing of oil, or bubbling of oil from the comb box, more power is required as the frequency of friction is increased.

3. *How often do you oil your comb boxes?* We oil every 60 hours. *How did you determine this oiling period?* This oiling period was determined by the amount of oil in the boxes at the end of a certain period, that is for test periods of 10 hours, 20 hours, 40 hours, etc., until an average was reached. This was found by experiment of periods in hours. After experimenting it was found that most of the boxes had consumed enough oil at the end of every 60 card hours to necessitate the addition of oil. *How much oil do you add at each oiling?* Two ounces of oil is

added at the end of every 60 hours.

4. *What is your oil consumption expressed in ounces of oil per 100 card-hours?* We consume 3½ ounces of oil for every 100 card-hours.

5. *What type of oil gives best results: light oil, heavy oil, compounded oil, or straight run oils?* We find that a compound oil gives best results due to its wearing quality, viscosity, and non-gum forming quality.

6. *Did you ever examine the inside of a comb box for sludge, gum, stopped-up oil holes and bearings, etc? If so, what did you find?* Yes. On some boxes some oil holes seemed to be stopped with dirt and other foreign matter, such as lint and gum which comes from sediment in the bottom of the boxes. It was found that the compound oil over a same period of time had less gum, which, of course, is caused by the brand and type of oil used, as all the oils have a different viscosity.

7. *Where does the oil go which the comb box consumes?* Part of the oil is utilized by friction of the bearings, especially a worn bearing. Sometimes the oil is forced from the overflow; especially when the oil is too low it will heat and overflow. Then, if too much oil is used it will overflow due to too much oil in the box. Oil will leak from worn boxes. Only a very small percentage is lost by evaporation. It is slung out of the top oil holes provided the inside oil passages and holes are stopped and will not permit free circulation. *Does the quantity of oil in the box affect the temperature? That is, does a box overfull run warmer than one underfull?* A box that is underfull will run warmer than one overfull because there is not enough oil in the box to lubricate it properly, therefore, there will be more friction, and more friction gives more heat. A box overfull will lubricate properly and keep the heat down. However, a little oil will be lost by being slung from the comb box, oil hole, or down the overflow.

8. *Do you have any other ideas in general on comb box lubrication?* Generally speaking, no carder should let the oil get below his oil level because it causes waste in oil, repair and possibly replacement of bearings or other parts. If too much oil is used on the job it will be wasted. Therefore, find the oil level of the box and keep oil there no matter what brand is being used.

CONTRIBUTOR NO. 6837

Warp Slipping on Beam

EDITOR COTTON:

On page 129 of the June 1937 issue of COTTON, "CONTRIBUTOR NO. 6662" requests information concerning preventing yarn slipping on the loom beam. This contributor does not specify counts of yarn, whether single or ply, but I will assume it is single yarn because ply yarn would not be as likely to wear away on the beam head. I will also assume that the warp number is 28s and the filling number is 36s, with yards per pound about 3.20.

In the weave room we have the impression that this cloth would have quite a little bump in the weaving. This means that the reed beats up the picks and the warp is under a strong tension, and if the warp is not wound tightly on the beam it will slide on the beam causing the selvages to rub against the beam head because the beam head is not turning as fast as the warp yarn is being taken up in the weaving.

One way to remedy this is to use two whip rolls instead of a single whip roll. See the accompanying illustration, Fig. 1. The warp yarn is then carried around the two rolls and the clamps, Fig. 2, are put on the ends of the rolls near their supporting brackets. This prevents the rolls from turning so most of the tension is removed from the warp and put on the rolls, thus stopping the yarn from slipping on the beam. When this has been done, the weight on the friction levers may be reduced. In the place of rolls and clamps, two pieces of 2-inch shafting could be used having about 2-inches at the ends squared to fit into square brackets.

Now to stop making warps at the slasher that will slip on the beam! See that when the slasher tender starts a warp he spreads the sheet of yarn evenly the full width of the beam and that he puts a square wooden rod on the yarn and forces it into the slot made into the beam for that purpose. In a good many instances the slasher tender grabs the yarn, making two, three, or four bunches and wraps them around the beam. This is entirely wrong.

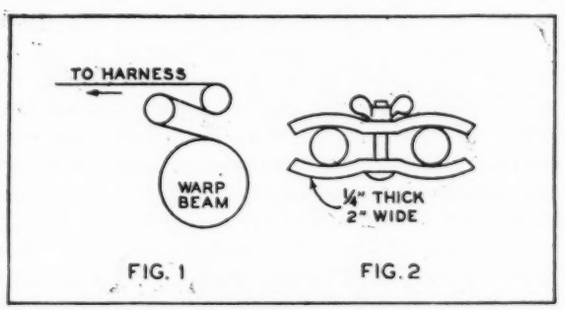

FIG. 1 FIG. 2

Next, give plenty of attention to the friction which drives the loom beam in the slasher because it may be slipping too much. The friction disc may be worn or the friction may need tightening. Weights can be added to the lever type friction, but as this type of friction is used mostly for light warps, the friction may not be able to tighten enough for the heavier warps. In this case the handwheel type of friction should be employed. It is recommended for heavy warps. It would be worth the extra expense to change the head end on one slasher for this special style of heavy warp.

Friction discs are made of rubber, fiber, wood, or cork inserts. A well known builder of slashers states in the catalog that rubber is commonly used and is considered standard equipment. It will also help to make a tighter wound warp by increasing the weight

(Other answers on this question appeared on page 102 of the November 1937 issue, and page 99 of the January 1938 issue.)

on the press levers. In extra heavy warps the levers for the weights are even lengthened to increase the pressure.

CONTRIBUTOR NO. 6739

Battery Filler's Job

EDITOR COTTON:

In our mill the battery fillers have little trucks to hold the filling. These are pushed along in the weavers' alleys, and are refilled from large filling boxes located on the spare floor. The battery fillers have no odd jobs to do, not even clean the batteries when the warps run out, and they are supposed to have a regular route each time. Pieces of filling are run in the same loom from which they are expelled. At present we are running a 26s filling which requires eight minutes and ten seconds to run out in the loom. The looms are 40 inches wide and are making 160 picks per minute.

We shall appreciate your readers of the "HOW OTHER MEN MANAGE" department giving us their opinions as to the number of batteries each battery filler should attend.

CONTRIBUTOR NO. 6848

Yarn Variation

EDITOR COTTON:

I wish to give my opinion on the questions asked by "CONTRIBUTOR NO. 6740" on page 117 of the December 1937 issue of COTTON. This man is running yarns from 7s to 45s with 15/16-inch Strict Low Middling cotton and requests information of manufacturing procedure.

1. (a) *Sizing bobbins of yarn and allowable variation.* About 10 years ago a mill considered from 1½ to 2 numbers off at a sizing as good spinning. Today in this precision age, I consider this too much of a variation. With present large packages, high speeds, and long drafts, even yarn sizings are essential. I consider the following variations as a goal for best results:

1s to 10s	2	per cent variation
10s to 20s	2¼	per cent variation
21s to 40s	2½	per cent variation
Above 40s	3	per cent variation

I consider the following good running work:

1s to 10s	4	per cent variation
10s to 20s	4½	per cent variation
21s to 40s	5	per cent variation
Above 40s	6	per cent variation

It is not a good idea to have such variation as 9s and 11s on the same frame. A traveler adjusted for 9s is too heavy for 11s, and a traveler for 11s would be too light for 9s, making soft wound bobbins and bobbins too large in diameter for the ring.

(b) *Frequency of making yarn sizings.* I consider a daily sizing on warp adequate and three times a week on filling sufficient for all purposes. A test bobbin should be taken from one frame in each room on each yarn number. Also, if the mill should have spinning frames of different makes or different draft constants it is necessary to take a sizing from each one. Fine yarn mills take a sizing on enough roving to run 7 or 8 bobbins of warp and 4 bobbins of filling daily. This roving is weighed and then sent to the spinning room to be run, and the bobbins of yarn made from this roving are considered as the regular daily sizing. The other weighings are random sizings.

The mill should have a regular place on the bobbin where yarn is sized, such as the bottom, middle, or top of the bobbin. The bobbins should be taken from the frame when full to insure that the same conditions obtain. If a half-full bobbin is sized one time and the next time a full bobbin is sized, the results will be misleading. I know of no reason why the sizing schedule should be changed or should vary with the count of yarn.

2. (a) *Frequency of weighing finisher drawing sliver and allowable variation.* One yard from each delivery on the breaker drawing frames should be sized weekly, each yarn to be weighed and put down on the size report separately. On the finisher drawing frames, 6 yards from each delivery should be sized four times daily, each yard to be weighed separately and recorded on the size report; then average each delivery and find the average of all the deliveries per frame. The sizing report should carry such headings as machine number, cotton, standard weight, 1st delivery, 2nd delivery, etc., and average. A 2-grain allowance either side of the standard is considered conservative.

3. *Method of creeling drawing.* For best results I suggest that cans from breaker drawing be mixed. In any machine where there are doublings, it is good mill practice to spread the stock from one machine in the preceding process over many machines in later processes. To make strong and uniform yarn running 15/16-inch Strict Low Middling cotton on counts from 7s to 45s, I suggest the following drawing frame settings be tried:

Center to Center Settings of Rolls

1st to 2nd	1 7/32-inch
2nd to 3rd	1 7/16-inch
3rd to 4th	1 11/16-inch

To accomplish this, it may be necessary to have the front of the second roll stands planed off to get a closer roll setting.

If the mill requires strong and even yarn, I suggest the following set-up for 20s yarn if the mill has long draft spinning and regular draft in the carding:

14-ounce picker lap
55-grain card sliver. Draft 105.80
58-grain breaker drawing sliver. Draft 5.69
60-grain finisher drawing sliver. Draft 5.80
.55-hank slubber roving. Draft 3.95
1.10-hank intermediate roving. Regular draft. Draft 4.00
2.60-hank fly frame roving. Regular draft. Draft 4.72
20s/1 yarn spinning double roving long draft. Draft 15.40

CONTRIBUTOR NO. 6805

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Safety Program

CONGRATULATIONS to TEX (GA.) for his article on the safety program in the January 1938 issue on page 97!! His remarks should stimulate some interest and action in this subject. TEX (GA.) tells of an overseer claiming that when a safety program is being promoted there is usually a number of accidents. This may be true in some cases, but if so, it becomes so only after the drive has become a common place affair which has been allowed to drag along, rather than being promoted with genuine interest on the part of everyone affected.

If considered from the financial angle alone, it is well worthwhile to promote safety programs and to keep them alive and active. Conscientious employees can become so interested in their own personal welfare that safety will become a habit, and to jeopardize a fellow worker's health will be taboo. If an overseer or second hand fails to keep the spirit of safety alive it is an indication of lack of interest for his workers.

From experience I have found that a progressive safety program must always have its foundation within the supervisory staff, and from here it must go through the entire organization, even if it requires considerable pressure. It is foolishness to instruct the employees not to spit on the floor and then have the overseer or superintendent expectorate a puddle in an alley where someone will not only slip on it but possibly drown therein.

In several organizations I have observed various types of safety systems, and from them all I have gained a number of ideas, both good and better, none bad. The poster method is effective to a degree, but it will become commonplace and unnoticed unless there is a variety of material continuously displayed to change the attraction. The inspection tour is effective, and essential. This inspection group should consist of the overseers and the superintendent, divided into pairs or threes, and making weekly inspections of the complete mill, noting any conditions that might be improved upon from a safety standpoint. After the supervisory force has had its turn, the second hands and section men should make the same tour and offer their suggestions. All inspections should be made while the mill is in operation instead of on the week-end, because on the closing day most of the trivial things that may cause accidents are usually cleared up.

To make the operatives safety conscious, one employee should be selected from each department weekly to make safety tours. Instruction could be given by the superintendent as to the possible observations, then one person selected as secretary to record all observations of the operatives' committee. These observations could be discussed in the safety meeting. A full-time nurse with a well equipped first aid room is an advantage to any mill.

On one occasion my department went for 19 months without an accident. The man that shattered this record was one who everyone thought would never have an accident. He was a card grinder and tried to remove a choke from the front of a card cylinder screen without stopping the card. He is minus a part of two fingers today. This incident seemed to take all the pride out of the other operatives in the department and it was only a short time before an oiler of long experience stuck his thumb into a train of gears. It seems that the very operatives that should know better are the ones that usually become careless and get injured.

Going back to the poster system, there are several examples that might be mentiond as being effective. Fig. 1 shows a sign which inspires the individuals to keep their department ahead in the safety drive. The figures are changed every day and are noted with pride by the operatives. Fig. 2 shows a sign that could be used for the entire mill. This should be placed at the mill entrance and the figures changed daily. A mill that I know of has the slogan "Work Carefully Today" over the entrance. Fig. 3 shows a method that is rather harsh but effective because it causes everyone to be on his guard to prevent his name being arrayed on the board for a long period. One instance of the effectiveness of this system is where a twisting department of over 50,000 spindles ran for over two years without a lost time accident. Another method is to have a chart carrying the names of all departments with the lost time accidents recorded by months.

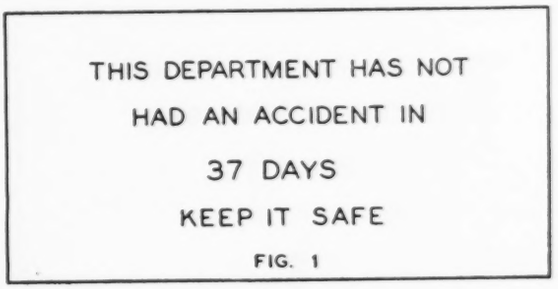

FIG. 1

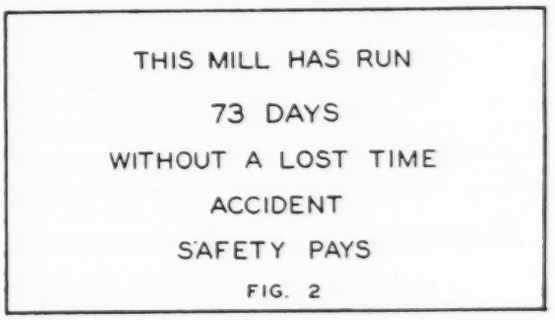

FIG. 2

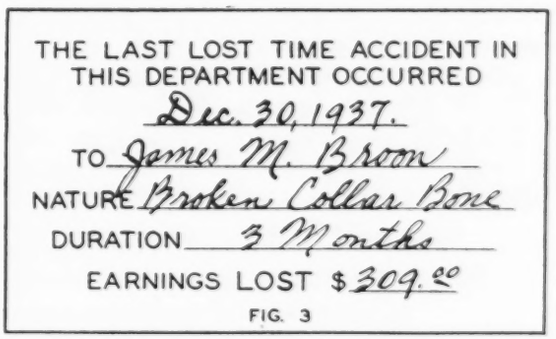

FIG. 3

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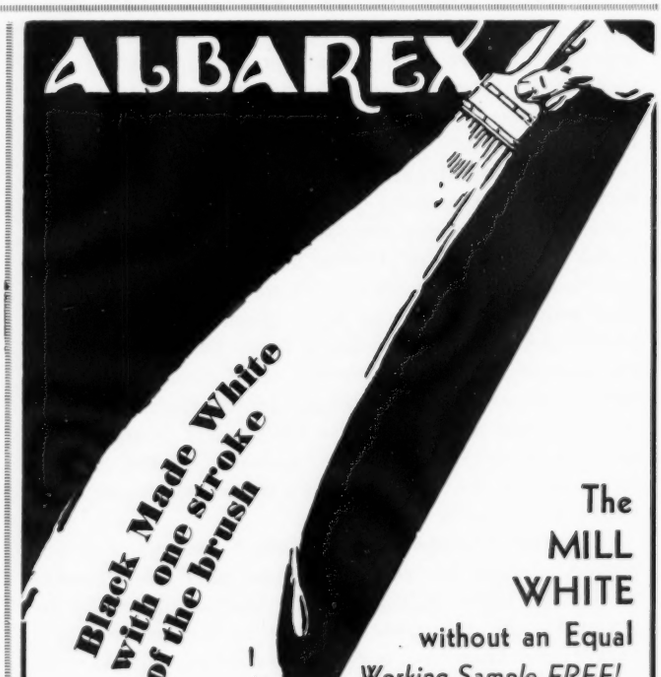

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In starting a safety campaign it is necessary to give the starting signal by word, bulletins, or group lectures. It is a good idea to have the safety rules printed and each employee given a copy. I believe that a mill should have the safety rules printed to give to new employees so there will be no excuse for not knowing the laws.

Some of the higher points in a safety program that can be printed and passed to the operatives are as follows:

1. Do not wear loosely fitting clothing, or carry on your person objects that might be caught by a belt or some protruding object.
2. Do not allow tool boxes to be sitting on the floor all over the department. The company owes all section men or fixers a work bench or box rack to place their tool boxes upon. Work benches should not be placed along the wall, but out in the open space so that the sweepers can sweep around them readily.
3. Pop bottles should not be taken away from the refreshment cart or stand, as a number of people are injured by these bottles each year after they have become broken from being kicked around or dropped on the floor.
4. Watch all open places on machinery to see that all dangerously moving parts are encased or covered.
5. Discourage the carrying of matches in clothing.
6. Do not allow anyone to clean clothing with compressed air.
7. Make sure that safety devices on every machine are working properly.
8. See that cuspidors are not placed in dangerous places, and that they cannot be moved by the feet or with little effort. Have them under the edge of the machines or suspended securely from the floor.
9. Keep all belting in good condition as well as the fasteners. A good rule is that no belt, regardless of length, should have more than three buckles or fasteners.
10. Be careful when attempting to put running belts on pulleys. It is easier and more economical to have a machine or set of machines stopped to mount a belt than to pay for an injury.
11. Keep all objects off the floor that do not belong there.
12. Oil, grease and water should be kept off the floor. Scrubbers should be made safety-minded about clearing and drying all water from the floor when doing this work. Leaking comb boxes around cards should be repaired or replaced. Bearings that leak oil should be repaired.
13. Junk should not be allowed to accumulate around or in work benches.
14. Work benches, tool boxes, and cupboards should not be used for supply rooms. Extra parts should be stored in the supply room.
15. Keep aisles and alleys clear of boxes, trucks, roving cans, etc.
16. Extra brooms should not be placed under machines or stacked up in some corner. Build a cupboard for them and put them under lock and key.
17. Insist that each employee get eight hours sleep daily so as to be alert on the job. A drowsy person is a hazard in any department. Working employees double shifts is also a menace to safety.
18. Make sure that machines are stopped when cleaning those parts that may cause injury.
19. Have no horseplay on the job. If recreation or exercise is needed let it be taken in the gymnasium, community house, or at home.
20. Allow no running or yelling on the job. Running isn't safe, and yelling is demoralizing.
21. Mark all light and motor switches, elevator shafts and fire equipment plainly so there is no possibility of someone getting hurt through sheer ignorance of existing conditions.
22. Wear goggles around fires, polishing and grinding wheels.
23. Do not permit the tossing of small objects, such as nails, punches, files or other small tools. An extra step may save an eye or bad injury.
24. Every foreman, overseer or superintendent shall make himself a good example of safety.

◆◆

Why not give a copy of the above safety rules to each overseer in the mill.

End-for-End Lease

EDITOR COTTON:

In looking through the April issue of COTTON I noticed a particularly interesting article on page 121 concerning an end-for-end lease on slashers to improve the drawing-in problem. The warps contained from 1,000 to 2,400 ends [on cotton].

I see no reason for taking an end-for-end lease on cotton warps with such a small number of ends. I recommend a wraith with 600 dents so the slasher tender can put an end from each beam in every dent. For instance, 1000 ends would require two ends in each dent for 500 dents, etc. Before doffing, tie a drawing comb on and then run around the beam two or three times. That should help to make a first class job.

On silk warps I suggest a hook reed with which an end-for-end lease can be taken. I believe this is the only way to run silk if you want good work.

CONTRIBUTOR NO. 6846

◆◆

Answers "Wash"

EDITOR COTTON:

I have often admired some of "WASH'S" articles and frankly give him the title of S.S.E. (meaning Super Speeder Engineer) for his great knowledge of the very speeder's soul. Why they say he could cure conical troubles by sheer hypnotic (or is it hyperbolic?) concentration. But alas, "WASH" is reaching for new conquests—in the field of research. A bombshell has exploded and shaken the very foundations of modern and scientific research all over the world; "WASH" has spoken.*

Now, before we fellows of research call ourselves complete "WASH-OUTS" we want to analyze "WASH'S" article and see if not a little bit of research work would have helped it before it was written.

1. "WASH" says he has found few men doing research work that are practical. This might be true, and if so it is a pity. What most everybody wants to know is: How many research men does "WASH" know? How few (in round numbers) among them, including himself, are practical? How many among the total are apprentices? How good are these few men who are practical; just how much and what do they have to know to pass the grade?

If "WASH" had said that one practical man to a department of 10 should be added it would not look so desperate, but what he says would be equivalent to giving an officer to every soldier in the army. He also criticizes what some "scientific fellows" found out about twist multiple and breaking strength. Did "WASH" check up by making these experiments himself, and if so, let "WASH" tell us his findings for a comparison. Furthermore, it is also interesting to perceive that "WASH" is picking on "another smart

*This letter is in answer to an article by "WASH", which appeared on page 95 of the July 1937 issue of COTTON, entitled " 'WASH' Asks 'Does It Pay to Have a Research Department?' "

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fellow" who professes to know something about picks.

2. Did "WASH" ask the Englishman whether he knew the number of blows to the inch of stock? If so, how far wrong was he and the "other smart fellow"?

3. Granted, excessive blows per inch would make a difference in the final strength; how much difference did "WASH'S" tests show? Of course he says it makes a whale of a difference, but he doesn't say whether it was a 1-ton or a 40-ton whale. (That's just as bad as the "smart fellow's" ignorance.)

4. And then "WASH" follows with statements about the vagaries found in the action of the cone belt. True, these things ought to be driven by Swiss movements. And his final whisper about roving testers is shocking.

Doesn't "WASH" know that a good soap is only a good soap when properly handled while washing the wash?

CONTRIBUTOR NO. 6741

An Old-Timer Says—
"What is Your Boy Going to Do?" (Part 2)
(Continued from page 85.)

the conservation of those products. Timber, for example, that is now being used in the building trades.

Only a few weeks ago a young man entering textile school wrote OLD-TIMER that he expected to specialize in chemistry, and as he says he reads the OLD-TIMER page, and as we have now gotten the production of cotton down to 2 cents per pound (?), suppose we dream a little about the possibilities of that young future chemist finding new uses for cotton.

We believe it is a rather simple process to convert cotton fiber into a liquid state, and if the process is now expensive, it will not remain so long after the production of cotton has been made so inexpensive that the cost of raw material is no longer a restraining factor in regard to its competition with other products.

With cotton fiber in a liquid or a plastic state it is of course adaptable to all kinds of moulding, of being made into sheets, blocks, cubes, rods, and every conceivable shape or form that any other product, such as clay, bakelite, rubber, cement, wood or any product can be made or shaped into. Then the only problem remaining is to treat the liquid mass in a manner to make it hard, soft, flexible or rigid as requirements demand suitable for the manufacture of different products.

For example, the present composition shingles for covering houses will hardly last 20 years (I know, because I have just had to recover 16 negro houses and one apartment building, built about 20 years ago). Is there any reason why our young chemist cannot find a way to make a cotton fiber shingle so that it will be practically indestructible? And, if he does, then the same reasoning would apply to weather-boarding, sills, rafters and flooring, and of course the shingles, weather-boarding and flooring would have coloring added to the cotton fiber while in the liquid state and therefore would never need painting.

If corn stalks make good insulation, just think of the various uses for cotton fiber along these lines. And we all know that paints as they are at present manufactured soon lose the oil content and begin to peel and fall off—probably our chemist will find that the addition of cotton fiber in liquid state will make a binder for paints which will double the life, not only of paints but all liquid coverings.

But, let's get back into the textile plant with our young chemist and see him making card cans of cotton fiber, also fly frame bobbins, spools, quills, warp bobbins, and race plates for looms, made of fiber so hard that wear is practically eliminated. And when our young friend finds a way to make a ply or cable thread so that it will withstand friction, then twine harnesses will come back into the mill for many weaves, and all harness straps, jack straps and check straps will be made of cotton. Only recently, Bibb Manufacturing Company has patented a new process for making cord for auto and truck tires, described in February COTTON. One of the outstanding achievements of that patent explains that in the process of manufacture the fibers are saturated with a non-cotton-destroying and non-coating liquid that softens the fibers, gums and waxes on or in the fibers, so that they are fused to a greater extent than has heretofore obtained in the manufacture of yarns or cords."

So you see we are learning something new about cotton practically every time Old Man Necessity calls for it, and our young chemist is likely to soon be telling us that cotton threads, single, ply or cord, can be made to withstand friction and wear. It will take no stretch of the imagination to predict the "new uses" for cotton when this discovery is made.

The cotton fiber in its natural state is highly hydroscopic, and the more moisture it contains, up to 8 per cent, or even 10 per cent, the greater its elasticity and tensile breaking strength. This feature, of course, makes the cotton fiber one of the best fibers to manufacture. However, it is comparatively easy to expel this moisture from the fiber, and then the fact that the fiber is easily put into solution and again converted back to a solid or plastic state shows what the possibilities are for the chemist to discover thousands of other uses for such an adaptable product.

(This article by OLD-TIMER pointing out the fields open in industry for young men will be continued in the August issue of COTTON. Copies of the first installment of this discussion, which appeared in the June issue, will be furnished upon request.—The Editors.)

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

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CONTINUED ON PAGE 98

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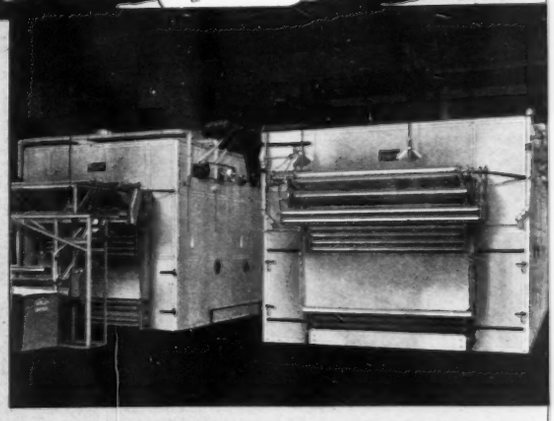

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Continued from Page 96

mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

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64. SKF in the Cotton Mills—A twelve-page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

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70. Fafnir Ball Bearings for One Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on eveners, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in Textile fabrics. The Merrow Machine Co., Hartford, Conn.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk. Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication—Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

109. Some Properties of Starch and Dextrine—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., 285 Madison Ave., New York City, N. Y.

110. 3-in-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., 1934 Dana St., Cincinnati, Ohio.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

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122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd St., New York, New York.

128. Houghton's Hand Book for the Hosiery Dyer—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

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134. STA-PUT Lubricants—A brief description of an entirely new line of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

139. Textile Detergents—Theory of the use of alkalis and control of pH—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergent in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

141. V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-belt drive design of special V-belt drives, numerous standard tables, charts and belt and sheaves list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

152. Plant Checkup List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154. Johnson Bronze Bulletin No. 340—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1374 on the P. I. V. Gear—giving details of this positive variable speed control. Link-Belt Co., 307 N. Michigan Ave., Chicago, Illinois.

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drive. Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, P. O. Box 1605, Providence, R. I.

164. Johnson Rotary Pressure Joints—Bulletin describing the rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

166. Precision Winding—An interesting 30 page booklet on rayon yarns and winding, designed for weaving and finishing mills using silk and rayon. Universal Winding Co., P. O. Box 1605, Providence, Rhode Island.

168. The Tube-Tex for Tubular Knit Goods—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

170. Gates Textile Accessories—showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

176. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about the method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 960 Arch St., Lancaster, Pa.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, New York.

184. Speed Control Handbook T-35—new reference book in variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind.

185. Dulux—The White Finish That Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. du Pont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin — Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single-Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

191. The Bahnson Humidifier—bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

COTTON, Grant Bldg., Atlanta, Ga.

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KNITTING SECTION

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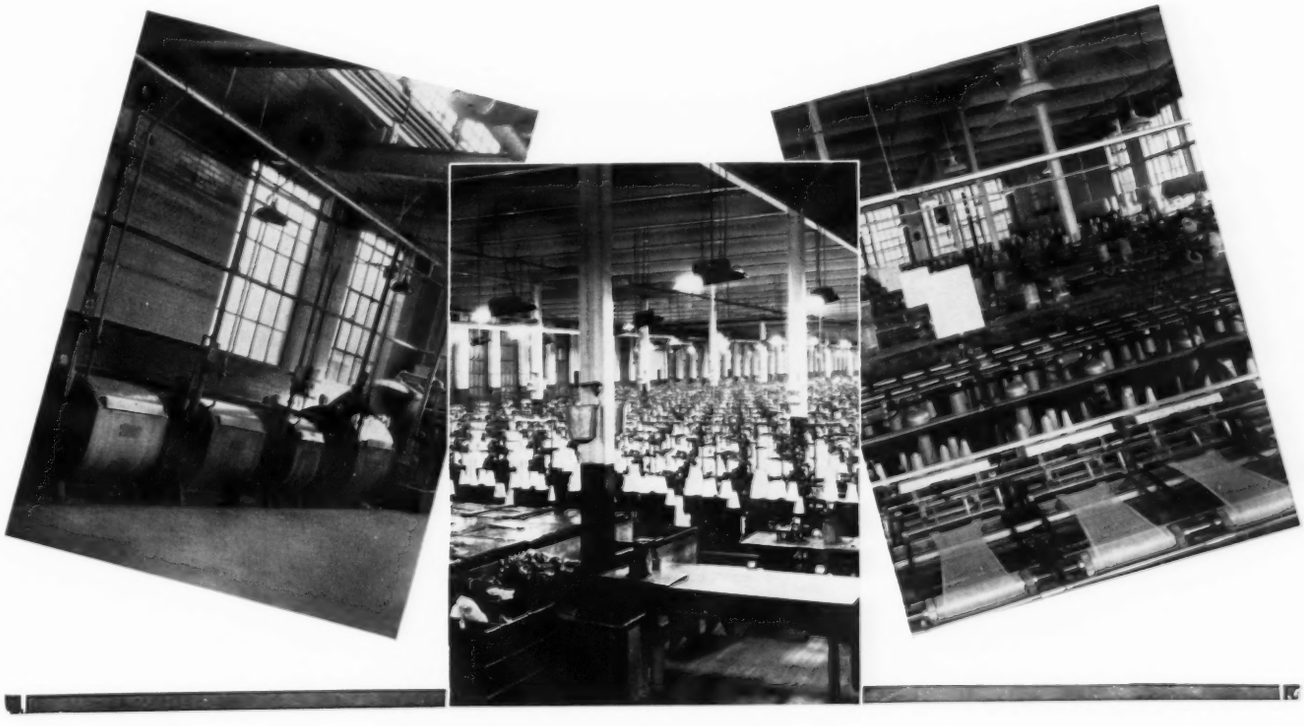

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"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"

The Maintenance and Fixing of Full-Fashioned Hosiery Machines

Care of Frictions, Shock Absorbers, Carriers and Narrowing Head Assembly

By Arthur J. Cobert

THIS is the tenth installment* of a series of articles on full-fashioned machine maintenance, being prepared especially for "Cotton" by a competent mill man. Thus far the vertical motion of the needles, the horizontal motion of the needles, the function of the regulator, the formation of the stitches, sinker-head and knock-over bar analysis, jack head and slur-cam analysis, adjustments in tension, the narrowing machine settings, and the coulier motion have been discussed. This article concerns the care of frictions, shock absorbers, carriers, and narrowing head assembly. The author will take up any particular phase of fixing you may request, or will answer practical questions submitted to him through "Cotton".—The Editors.

IN THIS CHAPTER we wish to give some thought to the care and adjustment of frictions and their relative parts. A wide difference of opinion exists as to the proper lubrication and tension of the various frictions of a full-fashioned machine and it is the purpose of this article to try and be of some help in determining what should be done and what should be avoided.

Today, where the use of high speed and multiple carrier work on the machines is becoming more prevalent, greater care than ever must be given to the frictions and carrier rods. Much improvement has been made in recent years as to the quality and type of leathers used in full-fashioned frictions. There are on the market today treated leathers that require a minimum of attention to insure satisfactory service. It is generally agreed that the looser the frictions can be kept and still work perfectly, the longer the life of the machine without excessive wear and breakage of a great number of parts.

The frequent renewal of leathers in frictions is advocated rather than trying to prolong the life of a friction giving unsatisfactory service. This system, in the long run, proves the most economical. When a friction begins to give trouble and too much pressure is required to keep it from vibrating at the end of the stroke, new leathers should be inserted. If a friction cannot be pulled by hand when it is locked, it is too tight. This applies to plaiting frictions as well as all others. There is no way of determining how tight a friction is, once it cannot be pulled by hand. It may be just past the point of pulling and then again it may be extremely tight. During the knitting of the heel portion where from four to six frictions are locked in simultaneously, each friction a little too tight is enough to cause serious damage to the coulier motion, not mentioning the strain put upon the narrowing head assembly.

Frictions lubricated improperly will often appear very tight when tested and then slip very easily once broken loose. This condition results from a glazed surface of the leathers and should be avoided whenever possible. Removing the leathers and scraping the surface will only help temporarily as they are permanently injured far deeper than the surface and unless the lubricant is changed this condition will quickly reappear.

The main friction should be tighter than the auxiliary frictions. As long as it can be pulled when locked, even slightly, it is not too tight. Plaiting frictions should have about the same pressure as the main friction. Where no plaiting is used the auxiliary frictions can be much looser; just tight enough to prevent vibration at the end of the stroke. This holds particularly true of frictions operated on a slow speed rod.

In selecting a lubricant for frictions, it should be kept in mind that one should be chosen that will keep the leathers soft and pliable and at the same time act as a lubricant. Where specially treated leathers are used, that is, softened by the manufacturer by a special process, only a little mutton tallow is necessary for lubrication from time to time. This product will keep the leathers soft as it is a natural animal fat especially suited for this purpose. It is highly penetrating as compared to castor oil or mineral greases.

New oak leathers that have had an application of neat's foot oil will give very satisfactory results providing some other lubricant such as mutton tallow is used from time to time. The continued use of neat's foot oil as a lubricant will make the leathers too soft and cause them to stick to the friction rod which is also undesirable. Nevertheless, as previously stated, the renewal of leathers frequently is advised.

The importance of keeping frictions in top condition will be reflected in the performance of the carriers and carrier rack assembly. Excessively tight frictions will cause the spindles to wear with a resultant high percentage of broken needles.

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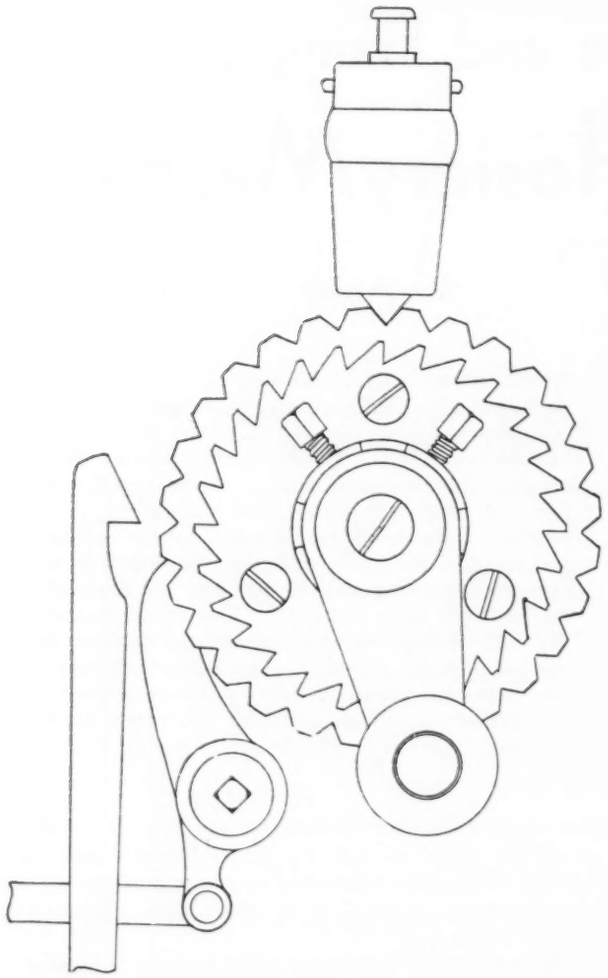
*The first installment appeared on page 103 of the July 1937 issue, the second on page 117 of the August issue, the third on page 119 of the September issue, the fourth on page 113 of the November issue, the fifth on page 131 of the December issue, the sixth on page 111 of the January 1938 issue, the seventh on page 109 of the March issue, the eighth on page 137 of the April issue, and the ninth on page 110 of the June issue.



End view of narrowing head assembly showing lock dial, reverse traverse ratchet, and operating pawls.

Carriers should be set as high as possible between the sinkers for this very reason and also to prevent broken and nicked sinkers in case of failure of the catch bar to perform properly. On most machines it will be found that the tip of the carrier tubes can be made just level with the tops of the sinkers and still retain a good selvage. In fact, low carriers will make a poorer selvage as the thread will often loop around the divider, bringing the thread one needle farther than needed. If the foregoing mentioned setting is found too high and the last sinker will not catch the thread, the carrier must be lowered a little. This often holds true where the carrier brackets are worn and the carriers raise up at the end of the stroke. The best way to lower a carrier is to open only one screw at a time. For example, loosen the left hand screw and move the carrier one sinker space to the right. Tighten the screw and loosen the right hand one. Then move the carrier back into the desired space and tighten the loosened screw. This manipulation lowers the carrier ever so slightly. Repeat the operation if necessary.

Inserting new carrier tubes frequently will lessen the number of press-offs as this sort of trouble is hard to ascertain definitely unless the tubes are changed. Carriers should be perfectly clean and rusty tubes should be avoided when soldering new ones. Use plenty of acid as a flux for once the carrier is put on the machine and running there is no danger of rust. A carrier has so little surface on which to solder that unless the tube is fused perfectly to the carrier, the possibility of its falling out is increased. Most non-corrosive pastes as a flux are not strong enough or do not clean the surface sufficiently to make a strong fusion possible.

There is on the market today a carrier that can be purchased outright which requires no soldering of the tube. It is not necessary to remove the carrier when inserting new tubes, merely pushing out the old one with a special pair of pliers and inserting the new one, directly on the machine. All this is done very quickly and no re-setting of the carrier is necessary. The tube cannot fall out. This type of carrier bids fair to become a necessity in the future development of full-fashioned hosiery.

Bending and shaping of the carriers so they pass one another properly is increasing in importance with the addition of extra carriers on the machine. Many mills are using six carriers in the heel portion of the fabric and this means that all carriers must be bent and shaped properly for good performance. Unless they are all kept close to the sinker head a loose course cannot be made without broken needles.

Setting the Shock Absorbers

The use of shock absorbers is also becoming more important with the speeding up of full-fashioned machines. Much improvement has been made along these lines for more efficient service. There are at least three distinct types in use at present which may be enumerated as follows: friction type, this employs the use of a slow-speed shaft on which is mounted a friction box, the friction being tightened to a point slightly greater than the friction to be slowed down. To this friction is connected a shaft upon which the stops are mounted that slow down the high-speed friction. This type of shock absorber is very simple in design and very easily adjusted. First, make certain the shock absorber friction is tight enough to withstand the pressure of the main friction in high speed. Beyond this point do not tighten it as serious damage can result from the friction being too tight. In the event the operator makes a mistake in making certain changes, this friction must necessarily slip to prevent damage to the slow-speed rod and coulier motion.

To adjust the shock absorber, have all the stops to the high-speed friction out of action until the preliminary settings are made. The friction itself should be located in the center of the rod in the area on which it is mounted. This will permit it to slip either way in case of emergency. Next, at both extreme ends of the slurbar stroke set the collars that are mounted on the shock absorber rod up against the bearings through which the rod passes. These collars are to insure the friction returning to its original position in the event it is thrown off center for any reason. Now, set the machine to knit the widest portion of the fabric and with the main

carriers locked in, the slow-down stops may be set to reduce the speed of the carriers toward the end of the stroke. Setting of the stops must be made by trial. Adjust them so that the sinker lead is reduced when the carriers stop at the end of the stroke to two or three sinkers. This much clearance must be permitted to allow for vibration of the carriers. Broken selvage needles may result if the lead is reduced beyond this point.

The second type of shock absorber operates on the principle of a cam motion for the reduction of speed of the carriers. Here a cam is employed upon which travels a roller. This roller is mounted on an arm connected directly to the shock absorber rod. The position of these rollers is altered with the position of the carrier stops during the narrowing operation and therefore connected to the narrowing head assembly. The cams are actuated from the slow speed friction shaft and two rods are required for shocking in place of one as on the first type mentioned.

To adjust the shock absorbers, place the machine in a position to knit the widest portion of the fabric. The cams should first be placed in a neutral position; i.e., so that they are completely out of action. This is toward the center of the machine. With the main carriers locked in, move the machine until the extreme end of the slurbar stroke is reached. Adjust the stop collar on the side the machine is standing, approximately one-eighth of an inch away from the main friction. This clearance insures the main friction taking the carriers solid up against the end stops. Make the same adjustment on the opposite stroke. Do not make any more adjustments on these collars from now on. The next operation is to move one cam at a time in the direction which will slow down the main friction until a point is reached where the carriers just clear the last two or three sinkers before they reach the stops. The setting of these cams requires close adjustment as very frequently the difference of only one sinker space in the lead of the carriers will affect the operation of the shock absorbers to such an extent as to cause the friction either to vibrate or pound, or to lag and break needles. Where the cams and bearings are worn considerably no accurate setting can be obtained.

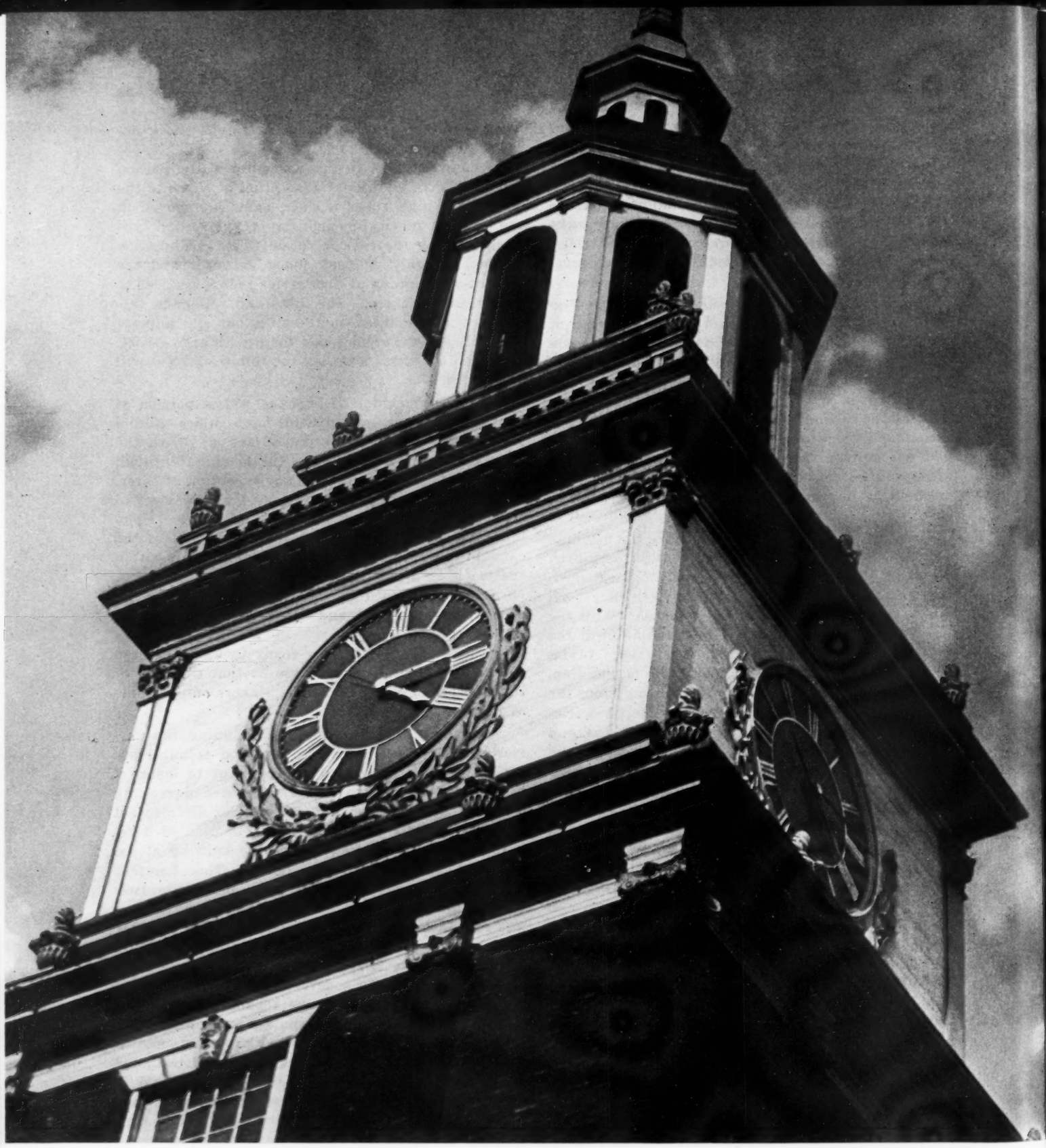
The third type of shock absorber is a combination of the first two. In this type the shock absorber friction is replaced by a slide bar and plunger. This assembly is actuated from the slow speed rod in the same manner that the friction is in the first type mentioned. Where the friction must slip in case of an emergency, the other depends upon the plunger being forced out of the nick, allowing the assembly to move over sufficiently to prevent damage to the coulier motion. Stop collars are arranged at the end of the movement to put the plunger back into the nick upon the return stroke. On this type the spring in the plunger must be strong enough to prevent it from being forced out of the nick by the pounding of the main friction in high speed. An adjustment is placed here for this purpose. The pressure of the plunger is synonymous to the pressure required of the friction in the first type shock absorber described.

In conjunction with this assembly, a cam motion is used to give additional absorption of shock to the carriers in high speed. These cams are moved in and out very much the same way as the second type mentioned, by the carrier racks. This combination creates a highly efficient shock absorber and the amount of pounding of the carrier rods is reduced to a very small degree. The arms and rollers in this instance are mounted on the slide bar and plunger assembly and move back and forth with each stroke. To adjust the shock absorber the following rules will be helpful.

Place the machine to knit the widest portion of the fabric and be sure that all stop collars leading to the main frictions are out of action. With the main carriers locked in, turn the machine until all sinkers have started out with the exception of three. In this position inspect the cams that are used to slow down the rod of the shock absorber. Upon these are inscribed lines for the adjustment of the cams in relation to the small arms and rollers. With the machine in this position move the cam on that particular side until the line meets the edge of the arm. Tighten the cam and move the machine to the opposite stroke. Repeat the operation on that side. The shock absorber is now ready to have the stop collars adjusted. Adjust these so that the lead of the carriers is reduced to three sinkers on each side of the stroke.

Narrowing head assemblies, including the carrier stop spindles and narrowing rod spindles are fitted with lock dials and plungers cut to insure a perfect two-needle movement with each narrowing operation. The narrowing rod spindles are also cut for a one-needle movement which is used in a reverse traverse operation during the knitting of the heel and toe portion of the fabric. This, together with a reverse ratchet and pawl, permits a two-needle forward movement of the narrowing fingers and a one-needle reverse movment of same after the narrowing is completed. By this method the width of the narrowing is reduced gradually, allowing the fabric to make quite a severe curve at the selvage without creating a bag or pocket-like effect in the fabric itself. This is especially important in the foot. Here, in conjunction with the reverse motion of the large fingers a small finger is used to insure still greater fashioning or shaping of the toe. With the aid of the small fingers a one-needle forward movement is obtained which gives very small overlapping of the fabric at one narrowing movement.

As the narrowing fingers near the end of the toe, a covering plate is put into action, covering the first two inside points and preventing these from picking up the stitches from the needles. As the narrowing fingers continue to work in, more of the points are covered until the entire small finger is covered. This forms the diamond of the toe for which the full-fashioned foot is popular. This again helps to shape the toe, preventing any bagging at this point. During the knitting of the diamond the large fingers are not reversed, but are permitted to



"All that time is lost which might be better employed"
ROUSSEAU

. . . and only with modern machinery can we provide satisfactory wages without sacrificing the advantage of low unit cost . . . Full-fashioned machines that were new in 1930-31 cannot compete on any basis with the new READING high-production Machines of 1938. Write us for facts.

TEXTILE MACHINE WORKS • READING, PA.

make a two-needle forward movement with each narrowing.

Narrowing spindles are all made to be adjusted for wear after long use. Excessive pounding of the carriers caused by tight frictions will wear the spindles unnecessarily. Many broken needles can be traced to this source and in the case of narrowing rod spindles, poor narrowing performance will result if too much tolerance is permitted at this point.

In concluding this article, the importance of proper care of the frictions and shock absorbers cannot be stressed too highly. So much of the knitting machine depends upon these parts and of their smooth operation that the fixer will be well repaid for his efforts in this direction. The old adage of "an ounce of prevention" holds true in this instance.

Annual Chattanooga, Golf Tournament and Outing

Golf and other forms of entertainment constituted the program of the 13th annual spring golf tournament and outing of the Chattanooga Textile Group, held this year on May 25 and 26, at the Lookout Mountain Hotel, on Lookout Mountain, near Chattanooga, Tenn. More than 250 members and guests, including knitters and other mill men, knitting machinery and equipment representatives, were present.

In the golf tournament, the chief attraction, which was conducted on a 36-hole handicap basis, Garrett Johnston, of Graysville, Tenn., took top honors. His score was 92-83—175, for 36 holes, with a handicap of 40, giving him the low net score of 135. W. L. McAllester, of Chattanooga, was second low, with a score of 101-91—192, handicap 56, a net of 136. John F. Fowler, of Cartersville, was next with the following score and handicap: 101-98-60—139. Then came: Jeff Gilbreath, of Chattanooga, 94-82-36—140; Nestor Groteleuschen, Clinton, Tenn., 90-82-30—142; Joe Callicott, Nashville, Tenn., 77-72-6—143; Fred Robinson, Dayton, Tenn., 103-96-56—142; Lee Rayburn, Morristown, Tenn., 102-100-60—142; R. P. Shapard, Griffin, Ga., 84-80-20—144; Gene Shea, Acworth, Ga., 90-84-30—144; Fred Sails, Charlotte, 83-79-16 146; Jim Huff, Jr., Rockwood, Tenn., 86-84-24—146.

Mr. McAllester was awarded a set of silver ice tea glasses, and also the Bob Smith trophy cup, played for until it is won by a Chattanooga manufacturer three times. Mr. Johnston received the tournament cup and watch. Thirty-two prizes, provided by the members of the organization, were awarded in the golf tournament.

For non-golfers, there were provided other forms of entertainment, including bathing, tennis, croquet, baseball, skeet shooting, badminton, ping-pong, horseshoes, etc., etc. A dinner and dance on Friday evening, with appropriate entertainment and awarding of the golf prizes, concluded the occasion.

Members of the Chattanooga Textile Group, who were hosts for the occasion, include:

C. Ralph Ewing, Central Franklin Process Co.; W. W. Crews, Avondale Mills; W. D. Gilman, Gilman Paint & Varnish Co.; C. D. Gott Oscar Heineman Corp., Aberfoyle Mfg. Co., and American Enka Corp.; Tom Moore, American Yarn & Processing Co., Parkdale Mills, and Valdese Mfg. Co.; J. B. Frierson, Jr., Dixie Mercerizing Co.; C. C. Harding, Dixie Throwing Co.; George S. Johnston, Jr., Textiles Inc.; Harry I. Dalton, Viscose Co.; Taylor Durham, J. P. Maguire & Co.; Roy Bradley, Tennessee-Eastman Corp., North American Rayon Corp., and Firestone Rubber and Latex Products Co.; Carl Epps, Torrington Co.; F. N. Belk, Johnston Mills Co.; Stanley McInnes, Scott & Williams, Inc.; Don L. Hurlbut, United Elastic Corp.; Frank Cater, Rayser Dyeing Co.; H. G. Gross, Hemphill Co.; Henry Gaede, Laurel Soap Mfg. Co.; H. O. Shuptrine, Celanese Corp.; Tracy Taylor, Shreve & Adams; William J. Kelly Jr., Burkart-Schier Chemical Co.; H. A. Rodgers, National Aniline & Chemical Co.; Walter T. Forbes, Hampden Co., Borden Mfg. Co., and Ruby Cotton Mills; Harry Robinson, Atlas Paper Box Co.; Ernest Jones, Ingram Mfg. Co.; J. E. McAlister, Southern Yarn Co.; W. S. McNab, Quaker City Chemical Co.; D. O. Blevins, Kaumagraph Co.; R. H. Griffith Duplan Silk Co., Thomaston Cotton Mills, and South Fork Mfg. Co.; Harry Horrocks, H. Brinton Co.; Dudley Bryan, Tubize-Chatillon Corp.; John Dabbs, E. I. duPont de Nemours & Co.; Henry Crumbliss, Cannon Mills, Inc., Ewing-Thomas Corp., and Everlastic Inc.; Bill Barnhardt, Barnhardt Bros.; French Campbell, Jr., Boger & Crawford, and Kahn & Feldman; I. C. Milner, Gate City Cotton Mills; H. W. Anderson, Fidelity Machine Co.; John Eason, duPont Rayon Corp.; James McDougall, Smith-Drum Company; Weldon Longley, Robinson Yarn Mills, Kinston Textile Mills and Sellers Mfg. Co.; W. S. Lawson, Standard-Coosa-Thatcher Co.; Vaden Shadden, E. F. Houghton & Co.; Lew Boyd, Scholler Brothers, Inc.; Spencer Sparks, Katakura Corp., Leon & Ferenbach, and Rowan Cotton Mills; R. W. Weaver, Textile Machine Works; W. L. Jackson Industrial Rayon Corp.; Fred Sails, Atwood Machine Co.; and Russell McKinney, American Cyanamid & Chemical Corp.

◆

Finer Hose on Coarse Gauge Machinery

According to reports, a patent on a method of knitting that will make it possible to double the gauge of either full-fashioned or seamless hosiery machines is expected shortly to be granted to Oscar Sauer, Philadelphia. The process is described as of particular advantage in reclaiming 39-gauge machinery from obsolescence. Three times as many courses per hour as heretofore are said to be obtained by the new method.

◆

SOMA Outing at Absecon, N. J.

The Sulphonated Oil Manufacturers Association held its spring outing at Seaview Golf Club, Absecon, N. J., on June 1-2, with approximately 40 members and their friends in attendance. A golf tournament was the chief feature. Ted Atkinson, Fred Scholler, and C. V. Davis, a visitor, were the winners of low net prizes. Other prize winners among the members were John McChesney, A. E. Jones, Jr., L. O. Koons, A. J. Royce, J. C. Cadmus, Leon P. Brick, Charles Ehrengart, and A. B. McCarty. Visitors sharing in the awards were: K. M. Dillabaugh, M. J. McCarthy, E. A. Robison, T. H. Gill, Wm. Bertolet, A. Mittendorf, A. A. Underwood, Fred Babcock, G. E. Olsen, E. J. Healy, J. C. Kay, and others.

Camera shots at the Chattanooga outing. At left, Bob Griffith is waiting for Henry Bryan to drive. At right, Burton Frierson is putting. The center foursome includes H. A. Vestal and A. H. Thatcher and two friends.

The Difference is in the Needles

The only real measure of value in needles is their ability to produce profitable merchandise. To insure finer qualities, greater speeds and a clearer, sheerer fabric, all the facilities of our needle department are now concentrated on one product—the new Royersford Specially Finished Needles. Because special finishing is a "standard" operation, you get Royersford Needles at the lowest price you ever paid for anything approaching this profitable performance.

The prescription for better knitting

ROYERSFORD NEEDLE WORKS, INC., ROYERSFORD, PA. : : Spring-Beard Needles, Narrowing Points, Picot Points, Lace Points, Welt Hooks, Transfer Points, Stand Points, Bent Points, Dull Points : : Sinkers, Dividers, Jacks, K.O. Bits : : Thread Holders, Carrier Tubes, Welt Bar Hooks, and Eyelets, Strap Cleats, Plate Hooks, Footer Hooks, Strap Hooks : : R.F. Clamps and Straps, Legger Straps, Tension Wires, Snapper Springs, Mend Hooks—for all machines : : *For Glove and Underwear Industries*—Milanese, Tompkins and Tricot Needles, Milanese and Tompkins Guides, Tram Travelers : : Development work. SOUTHERN REPRESENTATIVES: Dave Blevin, Provident Bldg., Chattanooga, Tenn.; Robert Baker, O.Henry Hotel, Greensboro, N.C.

ROYERSFORD NEEDLES

KNITTING KINKS

A Review and Discussion of Horizontal Striping Attachments for Scott & Williams Machines

IN THE two previous articles covering the operation and adjustment of the third horizontal striping attachment built by Scott & Williams* (shown here as Fig. 1), attention was called to the various improvements which were made over the first and second striping attachment. Once more we find another worthwhile improvement added to the thrust bar actuating lever assembly (4257).

Anyone familiar with the first and second striping attachments will recall that the old style actuating lever had but two adjustments; the actuating lever finger (13408) could be moved toward or away from the thrust bars and the movable plate (7451) could be set toward or away from the striper drum cams. Moving the adjustable plate (7451) either way would of course increase or decrease the lifting action of the thrust bar, but it would also change the position of the adjusting plate in relation to the striper drum cams. Moving the adjusting plate toward the striper drum cams would increase the lifting action and it would also cause the actuating lever to lift earlier. Reversing this adjustment would produce just the opposite results.

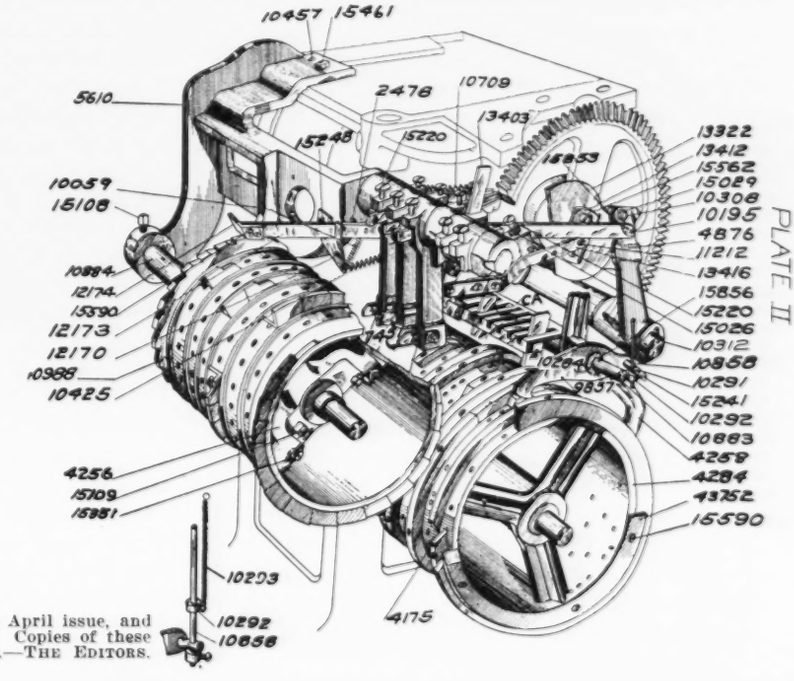
Some additional thrust bar lifting action could be secured by moving the actuating lever finger toward or away from the thrust bars or by bending the actuating lever finger up or down. The latter method is a more or less tedious job requiring a pint of good judgment, a quart of patience, and a gallon of luck. After the third attempt, the machine fixer would usually say, "Boy, that's mighty close; guess I'd better call that O. K." All he needed was a little additional height for the yarn finger; he finally got it, but what a job it turned out to be.

All of this fitting, adjusting, and guess work have been eliminated on the new style actuating lever by a slight change in design and by the addition of two actuating finger lever adjusting screws. One adjusting screw being located on each side of the actuating finger screw, with a slightly wider recess in the lever for the actuating finger, makes it possible to raise or lower the actuating finger in a few minutes' time without making any change in adjustment of the movable plate on the actuating lever or changing its relation to the striper drum cams in any way.

Correct height of the yarn fingers is very important in making horizontal striped numbers. Many everyday troubles such as bad laps, press-offs, irregular length of yarn laps, long ends, etc., are as a rule directly or indirectly related to the height at which the yarn fingers operate. The addition of the actuating finger adjusting screws has made it possible to eliminate seconds and waste—not to mention a direct saving in time and labor for the machine fixer.

Some machine fixers prefer to adjust the actuating lever fingers so that all yarn fingers are held at an equal height above the needles when the fingers are up. Others claim better control of yarn fingers can be secured by adjusting the No. 1 finger to a given height, then slightly increasing the height of No. 2, No. 4, No. 5 and No. 6 respectively. Much depends on the position of the cams on the striper drum, finer springs, thrust bars, speed of the machine, etc., etc.

Today more than ever we are interested in results,



Right, Fig. 1.

*The first article appeared on page 147 of the April issue, and the second article on page 115 of the June issue. Copies of these previous installments are available upon request.—THE EDITORS.

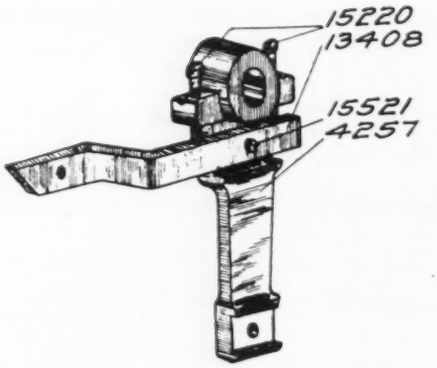


Fig. 2.

not claims, so, Brother Fixer, if you are getting results with your finger adjustments, you are on the right track, stick to it; if not, it is high time for you to do a little experimenting to find out how come and why.

The writer is inclined to favor the graduated finger setting; however, many of our pet ideas and opinions are subject to change without notice.

The Two-Course Idling Device

The two-course idling device is a part of the regular striping attachment shown herewith; however, this part of the attachment is not shown. It provides additional means for idling the striper drum and is controlled independently of the regular starting and stopping arrangement supplied by the pins in the striper drum ratchet wheel, the pawl controlling lever and starting link in the pattern chain.

Names and numbers of the respective parts of the two-course idling device can be found in the regular striper parts catalog.

Two steel cams (10888) which are attached to the high speed gear supply the necessary motion to control the idling device. The two-course cam-raising lever (13413 rides on these cams during the time the device is in action. The cam-raising lever is held in operating position by the lever bracket (13414) and pivoted on this bracket. The two-course cam link (13418) and the adjusting two-course cam connecting link (13419) provide a simple and positive adjustment between the lever (13413) and the raising rod (10886). The raising rod in turn is connected directly to the controller (4907) which is pivoted on the striper drum shaft; the forward end of the controller rides the drum cams on the main pattern drum providing the means for idling the striper drum during the heel-and-toe knitting. When the controller is up on a drum cam the two-course idling device is also held inactive.

The controller is provided with an adjustable raising arm (10420) which extends upward to the under side of the striper drum racking rod (12173). The raising arm should be adjusted so it will permit the racking plate (12174) to fall fully into the low tooth on the striper ratchet wheel when the controller is down on the main pattern drum. This permits continuous motion of the striper drum unless it is stopped in the regular manner by omission of the ratchet wheel pins or by the two-course idling mechanism.

Frequently striper drums will run out of time due to the raising arm being set the least bit too high, which causes the striper drum racking plate (12174) to miss the low tooth on the ratchet wheel. A simple way to get the proper adjustment on the raising arm is to set it when the controller is down on the main pattern drum, adjust the raising arm so it will permit the racking rod to ride low enough to allow the racking pawl to fall to the bottom of the low tooth on the striper ratchet wheel. This will assure proper idling when the controller is up on the main drum cams.

The two-course idling device can be converted into a four-course idling device by placing cam (10891) on the high speed gear between the two-course cams.

The two-course idling device adds greater flexibility to the striping attachment, for hosiery buyers of today want a variety of stripe patterns, especially in children's elastic top numbers. Without this device it would not only be difficult but often impossible to produce merchandise that will sell.

In closing the discussion of the third striping attachment, I would like to add a word of tribute to the machine builders for their untiring effort in providing attachments that serve faithfully if they are given a reasonable amount of attention. To make any machine or attachment operate successfully the machine fixer must first understand it thoroughly, he must know how the machine builder intended it to operate; then he will be in a position to begin fixing and stop guessing.

MATTHEW K. MITCHELL.

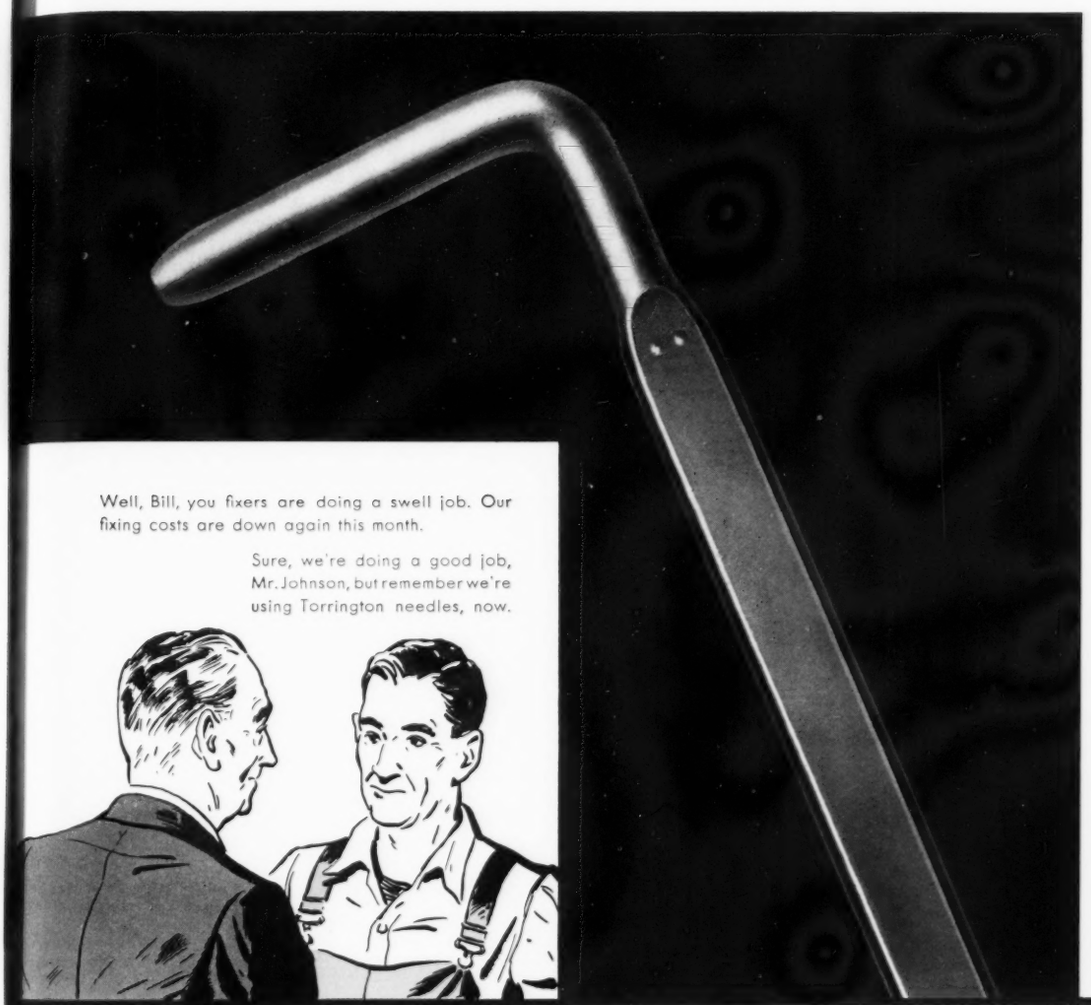
"Crow's Feet"

Two answers on the same question—reaching entirely different conclusions. What is your opinion on this? . . . . . .

COTTON recently received a sample of ladies' hose made on a circular knitting machine with defects in the fabric commonly called "crow's feet", also termed distorted stitches. These were made on a 300-needle Banner nib jack with a 3½-inch cylinder, the construction being of 100 denier Chardonize body weighing approximately 15.80 ounces per dozen. The mill man sending these samples to us desired to know immediately the cause of the crow's feet. The samples were sent to some of our friends. One of them replied as follows:

In offering a remedy or a suggestion for alleviating this trouble commonly called crow's feet, I want to assure you that my opinion is not strictly authentic, but I can relate some of my own experience along this line, which is accountable for many of the gray hairs in my head. My attention was first called to this trouble some four or five years ago by our sales manager who assured me that unless this trouble was corrected soon we were sure to lose all of our rayon business. I was knitter foreman at that time and knew that it was not coming from the knitting department and that this was not my responsibility, but as no one seemed able to discover the trouble and as I realized that if *someone* did not discover it soon

FIXERS FAVOR TORRINGTONS, TOO!



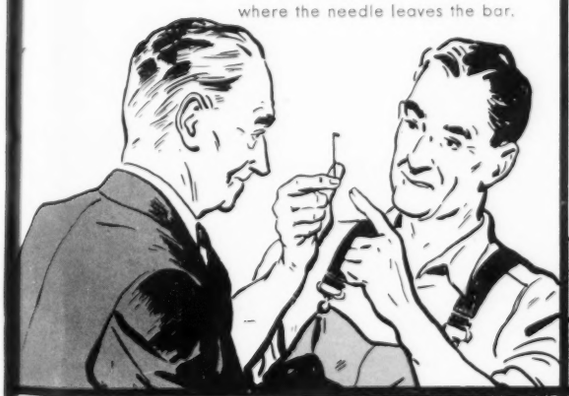
Fixers, too, are responsible for efficient knitting machine operation. That's why so many favor the use of Torrington *machine-made* needles. Let one fixer tell you how Torringtons help him do his job better. Torrington Sinkers, Dividers and Split Dividers are *machine-made,* too—by the same mechanically controlled methods.

Well, Bill, you fixers are doing a swell job. Our fixing costs are down again this month.

Sure, we're doing a good job, Mr. Johnson, but remember we're using Torrington needles, now.

You always said Torringtons would make a difference, didn't you?

Yes, they're *machine-made*—stronger and more uniform in the parts that count. For instance, take this part here—where the needle leaves the bar.



What's that got to do with the way they work?

Well, the more uniform the needles are here, the better they fit in the grooves and hold their alignment.

I see, less forward and backward motion, eh?

Yes—and that means less trouble from breakage. It's just one of the many reasons why we like Torringtons!

TORRINGTON *Needles and Sinkers*

You get the true measure of needles when you compare the work they do with that done by other needles. Knitting done by Torrington Latch Needles has long been noted for its high quality. Today this quality is more evident than ever before—for Torringtons are machine-made needles, and machine accuracy is reflected in smoother knitting over longer periods of time. Take a step toward improvement *and* economy. Standardize now on the needles in the red and green box.

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we would all be out of a job, I took it upon myself to ask every hosiery man I met for a suggestion, but none of the suggestions would cure the difficulty we were having.

Sometimes we would run along nicely for several days and then the trouble would break out again. I suggested to the dye foreman that the trouble might be coming from his department, but he contended that no changes had been made in the materials in his department and could see no reason why his department should be blamed. One morning our finisher called me down for the nth time to know what I was going to do about these distorted stitches, and he had for me a good exhibit of three styles made of three different kinds of rayon and on both 260- and 300-needle machines. I reasoned that all of these brands of rayon would not go bad at exactly the same time and neither would all of my machines, so in my mind I had traced the trouble to the dyehouse.

The dyer had already assured me that he had made no changes in his materials or methods of dyeing, so I decided that the trouble was bound to be in the water and suggested this to the superintendent, who in turn called in a chemist from the city water department. Upon checking the water he found it to be on the alkaline side.

The next time our dyer made his run he secured a lot of old rayon thirds that had been in stock for several months and added the necessary chemicals to neutralize the dye bath. Result: the goods came out perfectly free of crow's feet. This was a happy day in our organization and we have had little trouble with these pesky devils since.

I believe that crow's feet are 95 per cent a dyehouse problem and that is the only place they can be eliminated.

Another man was of an entirely different opinion as may be seen from the following: I have examined the sample carefully and in my opinion the crow's feet or distorted stitches are being caused by machine trouble—poor control of stitches at the knitting point. There are traces of distorted stitches in the heel and toe and in the splice on the sole that are readily visible under a microscope. This trouble is not uncommon when knitting fine count rayon, mercerized silk, on any type of fine gauge machine. The machine the sample was knitted on seems to handle the heavier portions of the hose better than the light portions.

I assume that this party is having trouble with all machines and suggest the following: Use a light tension on the yarn, just enough to assure a steady even pull off of the cone and run the yarn high in the needle hooks by feeding it close to the corner of the mouth peice. See that the stitch cams are in A-1 shape; raise the cams free from gaps and set *in* as close to the stitch cams as possible. Polish the sinker cams carefully, making sure the points are sharp. Check the sinker cam adjustments for distance in and proper lead or throw, making sure the latter two adjustments are very accurate. I assume the inquirer keeps the needles in proper alignment and has good needle bonds on his machine.

Wear on Needle Beard

EDITOR COTTON:

We are having some trouble with our needles on our full-fashioned machines, and we shall appreciate your readers offering us their opinions. What causes excessive wear of the needle beard just at the point of press? This wear is caused on a machine where the setting is such that if any more press is taken off, the needles will hang up.

CONTRIBUTOR NO. 6812

Trouble Knitting 3-Thread on Coarse Machines

Is having complaints of fabric popping out. What is the remedy? . . . . . .

EDITOR COTTON:

Since the modern trend toward sheer full-fashioned hosiery, knitters are now knitting 3-thread stockings on coarser gauge machines than were meant to knit such sheer fabrics. Knitters are receiving complaints of the fabric popping out. Sometimes this occurs even after the stocking has been worn. It is indeed a serious problem to have the stocking break out somewhere in the leg fabrics, without seemingly any cause whatsoever. I would like to know the cause of this trouble, and how it can be eliminated.

CONTRIBUTOR NO. 6814

Jelly Accumulations in Moistening Troughs

An analysis of both silk and water.

EDITOR COTTON:

"CONTRIBUTOR NO. 6813" contends he is having trouble with the oil used by throwsters in their silk soaking solutions coming off in the moistening troughs on the knitting machines, causing a thick jelly accumulation on the glass floats, felts, and in the bottom of the troughs. His question appeared on page 120 of the June issue. Through COTTON we received a sample of the silk and water used by "CONTRIBUTOR NO. 6813".

Examination of the samples of thrown silk and moistening accumulation from "CONTRIBUTOR NO. 6813" showed the silk to have a pH of 9.9 and to be very hygroscopic, wetting out almost instantly on all tests. This silk was probably soaked with an initial pH of about 10.8 to 11.0, which is entirely too high, especially for such a low twist yarn. We believe this accumulation in the moistening troughs is due to stripping of the gum. This can be controlled by proper adjustment of the soaking bath. It is true that we were able to extract a small amount of oil from the residue in the moistening troughs, but we believe this was absorbed oil that stripped off with the gum.

A far more serious condition in our opinion is the fact that the water in the moistening troughs is very acid. This has a pH of 5.4. Acidity will blacken and eventually pit needles and sinkers. One explanation of this acidity is that possibly bacterial action has started in the troughs, causing a decomposition of the stripped gum. Products of bacterial action are usually acid. This theory is strengthened by the strong offensive odor and black discoloration of the material from the moistening troughs. We immersed a small reeling of the silk in distilled water overnight and after 18 hours this had already developed some odor and the pH had dropped to 9.3. To remedy this condition, the troughs, felts, etc., should be thoroughly cleaned and then 0.1 to 0.2 per cent mildew preventive used in the troughs. Steps should also be taken to be sure that sufficient mildew preventive is used in soaking the silk.

CONTRIBUTOR No. 6841

A Helpful Kink

Some of the finer points in dressing down the chain pawl plate . . . . . .

EDITOR COTTON:

The other day a conversation in the mill prompted me to write this bit of information down and send it to you, hoping that through your magazine it might reach some young fixer and help him along the endless road of learning to be a fixer.

This case pertains to an HH but it is also applicable to any S & W Universal machine.

One of my machines had refused to make the proper kicks, and on checking over it I found the chain pawl plate badly worn. I removed it and went to the emery wheel to dress it down. Another fixer came along, saw what I was doing. He took the plate out of my hand, looked it over and asked, "Why don't you get a new one from the boss?" I showed him that this plate had never been dressed down and told him that it had two or three years of wear in it yet.

Some fixers have a habit of taking a worn part off a machine and putting on a new one without giving a thought to anything else.

From experience I have learned that even new parts do not always fit properly, especially those that are made in some local shop. If it is necessary to shape and dress a new part it is just as easy to dress the old one.

I believe that any fixer will agree with me in saying that a chain pawl plate wears first at the bottom of the blade, and as the bottom wears the edge of the blade disappears. This leaves a very blunt face on the blade, and the ratchet wheel will not be moved the required distance with each thrust of the segment gear. Sometimes the bottom of the plate blade will be worn so round that the pawl will slide up over the teeth of the ratchet wheel and not move the chain at all. I don't believe it is necessary to mention here the results of such cases.

The first step in dressing a chain pawl plate is to grind the face of the blade down so that it is perfectly square with no picks or sharp points remaining. Then grind the top of the blade off so that the face is beveled. The angle of this bevel should never be greater than 40 degrees. A little less does not matter but never more. In beveling the face do not take off any of the bottom edge as this will shorten the blade.

Now for the "kink" as shown finished in Fig. 1. Grind the bottom of the blade out on an emery wheel having a diameter of about three inches. (See Fig. 2) Here, too, be sure not to grind the bottom edge of the face. It is this kink, or hollow, in the bottom of the blade that gives longer wear. It is easy to see now that as the bottom of the blade wears it sharpens itself and maintains an edge.

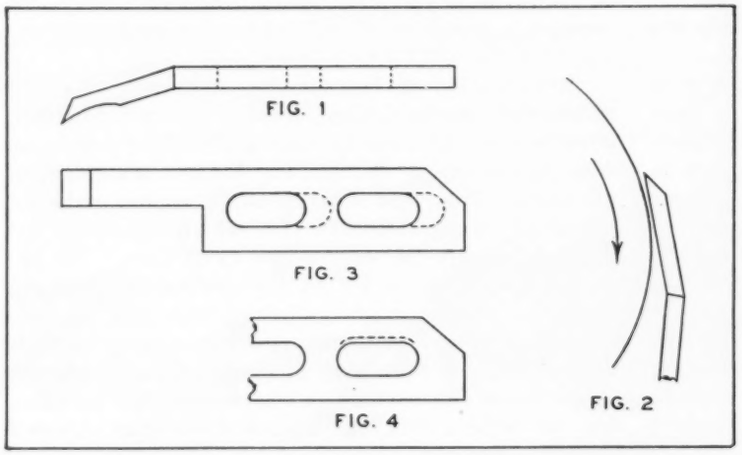
Now then, measure the plate blade to see how its width compares with that of the ratchet wheel. If the blade is too wide, grind off one side, preferably the inside, to assure even wearing of the edge.

When the grinding is finished, always polish the blade well on a buffer so there are no real sharp edges to cut into the ratchet wheel.

The pawl plate is now ready to put back on the machine. If you find it is too short and the screw slots are not long enough to permit sliding the plate ahead, remove it and file out the back ends of the slots as in Fig. 3. When you have replaced the plate, run the machine by power and watch the plate to see if it runs exactly in line with the ratchet wheel. If it runs to either side it will wear uneven again and possibly catch on the chain sprocket or clutch shipper drum, thereby giving the machine an unwanted kick. To remedy this remove the pawl plate again and file out the rear screw slot (Fig. 4) along the side necessary to give the desired adjustment. This will give the screw more room and allow the plate to be twisted sideways to get the proper alignment. (Fig. 3).

If you don't get it exactly right the first time, repeat the test until you do, for a little careful adjustment now may save you several hours of work later on and also save the mill many dollars in repairs.

CONTRIBUTOR No. 6818



Hook Needles

Has preference for forward hook needles for rayon plaited work . . . . . .

EDITOR COTTON:

The question, *Which type of needle, forward hook or central hook, would be better for rayon plaited numbers on Banner machines?,* has been asked me by a mill man and I would like to pass my opinion along to the readers of COTTON. If others have opinions I shall welcome them.

For any kind of plaited work, whether it be silk, cotton, worsted, lisle or rayon, forward hook needles give much more satisfaction than central hook. A forward hook needle has more room inside of the hook and is set closer to the throat-plate and latch ring, which affords better separation of the two yarns as they are fed from the fingers across the throat-plate into the needles. This distinct separation is very necessary for perfect plaiting.

Knitters may experience some trouble in transferring onto forward hook needles if they have been used to central hook transferring. Sometimes it becomes necessary to re-point the transfers as transfer points readily become worn and adjusted to the needles in the cylinder.

This trouble and waste and changing of needles may sound very costly, but it is much cheaper than having 15 and 20 per cent of the finished work come back from the inspectors labeled "bad work", "seconds", or "mis-plaits". CONTRIBUTOR No. 6721

Improve the Dyehouse

EDITOR COTTON:

"CONTRIBUTOR No. 6777" is doing a great service by acquainting the superintendents with the various problems of the dyer; his article entitled "A Practical View of the Dyehouse of Tomorrow" appeared on page 116 of the March issue of COTTON.

The writer recalls an amusing incident which happened during his first knit-goods dyeing job. The superintendent came around and gave orders that in the future no scouring baths should be dumped down the drain because it was like throwing barrels of soap into the river. It took a real selling job along with some dirty work to convince this superintendent that the excessive amount of mineral oil in this particular rayon required more baths than one.

An important point in this article by "CONTRIBUTOR No. 6777" referred to the elimination of direct steam pipes into the dyetub. We have been informed that some small tubs are now being used which receive their heat by gas flame. This is surely a step in the right direction and would overcome the dilution caused by live steam entering the kettle. This dilution is the cause of many off-shades. CONTRIBUTOR No. 6847

An Eye on the Knitting Mills

Thornton Knitting Company, Denton, N. C., has under way an expansion program which will greatly increase the capacity of the plant. An addition was recently constructed measuring 64x100 feet. Construction work and new machinery represents a cost of about $50,000. When work is finished and new machinery installed, about 150 persons will be added to the payroll.

Dothan (Ala.) Silk Hosiery Company, a subsidiary of a nationally known firm, will start immediate construction of a modern plant, which will represent an initial outlay of approximately $350,000. The first buildings will cover 25,000 square feet and will cost about $70,000. An additional $250,000 will be invested in machinery.

Rosman (N. C.) Knitting Mills, Inc., have completed installation of machinery and have begun operations manufacturing men's hose. Later the company expects to operate a dye plant. J. A. Ruth, Marion, N. C., is superintendent of this mill.

Jackson Hosiery Mills, Inc., High Point, N. C., have been granted a charter to manufacture and sell hosiery. Authorized capital is $100,000. W. L. Jackson, J. A. Myatt, and W. M. Field, all of High Point, are incorporators.

It is reported that another new hosiery mill will be established at Fayetteville, N. C. The Fayetteville Knitting Mills are already in operation manufacturing men's silk hosiery. The new plant will be operated by different interests.

McCrary Hosiery Mills, Inc., Asheboro, N. C., are remodeling a section of the building adjoining Mill No. 1, which when completed will give approximately 7,000 additional square feet for mill purposes.

Phoenix Hosiery Company, Milwaukee, Wis., has purchased 14 new full-fashioned knitting machines at an estimated cost of $150,000. The new machinery serves as replacement for old equipment.

Vanity Fair Silk Mills, Reading, Pa., have awarded a contract to Agee & Kimbrough Co., Pine Hill, Ala., for the erection of a one-story mill to be erected near Monroeville, Ala.

Kenmore Hosiery Company, Fredericksburg, Va., is constructing an addition to the plant. When it is finished, approximately 75 more operatives will be employed.

Oscar Nebel Company, Verona, Va., is constructing its second plant, which measures 130x167 feet. About 160 operatives will work in the mill when it is finished.

Barber Hosiery Mills, Inc., Mt. Airy, N. C., will begin construction of the building immediately, with Matt Hines, local contractor, having charge of the work. The mill will be 140x40 feet.

It is understood that a hosiery mill will be located at Quitman, Ga., which will be a branch of the Bryan Hosiery Mill, Chattanooga, Tenn.

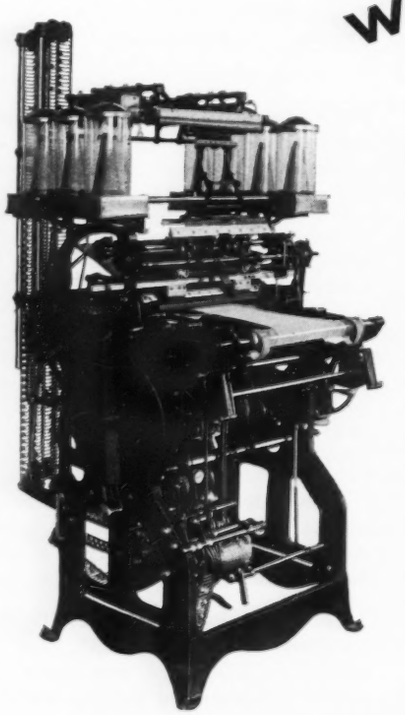
Nordman Full-Fashioned Hosiery Company, Charlotte, N. C., has installed an additional new model 28-section full-fashioned knitting machine.

Jac Feinberg Hosiery Mill, Rock Hill, S. C., will construct an addition to the plant, with the Rock Hill Lumber Company contracting for the work.

LaReine Hosiery Mills, Inc., Zeeland, Mich., have been incorporated with a capital stock of $100,000.

Silverdale Knitting Mills, Inc., Beaver Falls, Pa., have been granted a charter with a capital stock of $75,000.

"and no tell-tale rings where leg and foot meet!"



WHEN making the very fine gauge hosiery on the modern Wildman single-head, single unit machine, you do not have any loss due to bad matching which cannot be avoided when leggers and footers are used.

The explanation is that here, the hose is made on one machine and in one continuous operation, assuring a perfect match of leg and foot.

Uniformity of production—simplicity of construction—ease of maintenance and operation, and attendant economies are other advantages worthy of your inspection.

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WILDMAN MANUFACTURING COMPANY
NORRISTOWN, PA.

The Modern

WILDMAN SINGLE-HEAD, SINGLE UNIT FULL-FASHIONED HOSIERY MACHINE

TRENDS and HIGHLIGHTS of the KNIT GOODS MARKETS

Branded Full-Fashioned Hosiery Prices for Fall Mostly Firm. Surprising Activity in Women's Seamless. Rayon Yarn Reductions Result in Lower Seamless Prices. Underwear Volume Disappointing but Outlook Somewhat Better.

PENNSYLVANIA FULL-FASHIONED HOSIERY MILLS have been operating at about 50 per cent with branded firms in the area running full time while knitters in the Reading area have been doing about as well as Philadelphia. Wage negotiations are in progress with the unionized mills and such mills will name fall prices as soon as they are concluded. No important full-fashioned changes expected although low-end goods have been weak during the month while better hosiery has been steady. Makers of men's half-hose are dull but there have been brighter signs in this in the important selling centers although at very low prices. Some large chains have covered partly in infants' and children's hosiery for fall. Underwear interest has been quiet with the northern mills operating at poor rates but the feature of this has been the large volume that many mills have been doing in the men's knit brief shorts and boys' pullovers. Men's briefs have taken hold not only here but abroad and some mills have been doing an export business in them.

Full-Fashioned

This type hosiery for women has been outstanding in the present depression. Volume has been remarkable under the circumstances indicating in fact being that production for the year may break records. One reason of course for this is the sheers that have been selling and that do not last as long as the coarser stockings of the past. The large movement of full-fashioned is all the more remarkable when reports from large selling centers also confirm that women's seamless has been fair. Full-fashioned prices for most grades of stockings will hold for the fall, leading firms having already indicated as much but some unbranded firms have and may make additional cuts in the lower end merchandise. The price of 4-42 numbers has been around $5.25 per dozen.

Women's Seamless

The women's seamless lines have been one of the best for manufacturers. Some mills have their production for the next six or eight weeks sold and selling agents are after deliveries. At the same time reports are that contrary to the dullness in full-fashioned knee-lengths demand for seamless in such items has held up very well. Reductions in rayon yarns have brought cuts in rayon seamless and these in turn have caused knitters of silk seamless to weaken. Mills cut 5 cents a dozen on the late May yarn reduction making such stockings 15 cents a dozen lower than at the beginning of the year, numbers then selling at $1.55 are $1.40. Wholesalers find they can buy seamless silks good quality of 4-thread, 300-needle at $2.25 a dozen with the 32-needle at $2.50. Price changes in fact have been so important that buying has been disturbed and in addition entire price readjustments must now be made down to retail tags which will be lower to the consumers in the coming months.

Men's Half-Hose

Disappointing volume and very poor prices from the mill standpoint have been the rule in men's half-hose with emphasis being mainly on cheaper numbers. Many attractive designs have been developed by knitters on the flexible types of machines now available and the outlook is brighter in these numbers. Prices of rayon lines were not affected a great deal by the rayon yarn cut having been so low previously that no more could be expected. Cool weather has retarded the jobber volume so far in the summer slacks which went so well last year. With warmer temperatures sellers say retailers immediately began to specify more of these and they expect a good volume over the summer. The rubberized tops to men's half-hose are popular in most sections, many consumers not wanting to wear garters in the hot weather. Cotton half-hose has been in fair demand.

Anklets

Although the season is about 7 per cent under that of this time in 1937 a fair to good volume is being done in anklets. Some new types of this line have been going well with consumers, it being reported that the winged style of anklets have sold well with children's numbers retailing at 25 cents. Many stores say buyers now want the cheaper anklets in preference to the old price tags that moved the best, indicating that at least in the Philadelphia retail section the average consumer has less to spend. Mercerizers say the cuts in rayon yarns will not worry them as they feel anklet manufacturers will take mercerized in preference even though mercerized yarns have not gone off. Some jobbers have been placing duplicate orders with the mills in view of their small initial ordering; locally, demand for anklets has been hardly fair but improved at retail this month.

Underwear

The underwear situation lagging behind hosiery, has been disappointing both in respect to manufacturers' volume and prices. The market has been quiet and mills operating on very low schedules in majority of instances. The highlights of the month have been the good demand for men's knitted brief shorts which are taking not only in the United States but abroad. Another good seller has been children's and boys' pullovers of Basque type. Mills hitting this demand have been active. Another highlight was the announcement made a few days ago that Hanes had changed its prices so that its popular 35 cent numbers of shirts and shorts would now be retailed at 25 cents. This took the market by surprise and caused much excitement. Mills have been forced to reduce prices over the year to date so that some had got down previously to the 25 cent retail basis but profits for the mills at such a figure are very unsatisfactory. With athletic shirts quoted down to $1.30 per dozen there is nothing in any more for the knitter and the Hanes move therefore did not soften

the price structure further. Not many look for a good fall underwear season feeling it may be the 1939 spring season before a good turn comes; however definite improvement over present conditions may be expected in the fall upturn.

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Reading Hosiery Contract Cancelled by Union

The American Federation of Hosiery Workers notified the Keystone Hosiery Manufacturers, Inc. of its intention to cancel the existing contract which expires July 1. The decision was made by the executive board of the union in Reading after hearing a report of a preliminary conference with the manufacturers, at which concessions offered by both sides were refused. Since that date, various conferences have been held by representatives of the union and the manufacturers. At one conference the union was reported to have requested a closed shop and checkoff while the manufacturers asked for an adjustment in the wage scale, with both sides rejecting each other's request. In effect only two months and a half the Reading agreement failed to satisfy either the manufacturers or the organized workers. The mill men asserted when the pact took effect March 14 that the new rates set by arbitrator A. W. Williams still ignored southern competition. Asserting that Dr. Williams' decision had not aided Reading manufacturers to meet the Southern scale, the mill's attorney declared that the fifteen mills in contractual relations with the union had suffered a net loss of $419,416.00 on total sales of $13,429,279.00 in 1937, and that such a situation could not long continue.

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Union Studies New Northern Hosiery Agreements

At the same time negotiations were being carried on with Reading manufacturers, conferences have been begun relative to a new agreement with manufacturers in the Philadelphia area who are members of Full-Fashioned Hosiery Manufacturers of America, Inc. Union officials express the hope that early agreements in both cases would be possible so that no interruption to the fall season would be experienced. The first meeting of the new national executive board of the American Federation of Hosiery Workers was to be held June 12 in Milwaukee when it was to be determined what the policy of the federation would be on agreement renewals, wages, and working conditions. "We will weigh carefully the relative merits of the one year and the extended agrement so that we may decide what policy to pursue in our negotiations with the manufacturers," William Smith, general secretary of the union, said.

"We hope that as a result of our deliberations at the board meeting, it will be possible to settle the wage question in the Northern area within a short period so that the employers in the districts in which we now have agreements, will be able to submit early price quotations on fall business." On June 13 and 14th the Full-Fashioned Hosiery Manufacturers of America, Inc., held a conference to decide what stand they should take in regard to a new contract with the union. While manufacturers in the North have been unable to make any substantial progress in meeting southern competition since the arbitrated wage level was agreed upon, indications are the union is now powerful enough to prevent any substantial decreases in the present wage structure. While the manufacturers will probably obtain some minor concessions, the trade feels nothing drastic along this line will develop.

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Oakbrook and Union Sign New Agreement

Renewal for one year of an agreement between the Oakbrook Hosiery Mills, Inc., and Branch No. 10, American Federation of Hosiery Workers, affecting approximately 800 workers was announced June 1, following a meeting in Reading. Attorney for the Oakbrook said the renewed contract contains the additional provision that all union jobs at the plant shall be

Forecast

(Opinion offered by "COTTON'S" Market Correspondent)

Philadelphia, June 16, 1938.

Is there to be a worth while fall season in textiles? That is the problem confronting the industry today and if current trends are to continue long the answer must be that while there will be some seasonal upturn, this will be too far under a normal fall to bring the year's total up to anything that can mean profits for most mills. What was felt to be merely a moderate "recession" of business six months ago has developed into a first class "depression." How long this will last or whether bottom has been hit is not known yet but most feel we are on or very close to bottom and while business may move sideways for a time not much worse can be expected.

In textiles two developments have come in the month which upset previous predictions and majority ideas of the industry. The first was the surprising reduction in rayon yarn late last month to the lowest level in the history of this business except for a few weeks five years ago. This came about although several rayon firms showed losses for the first quarter before the last reduction. Now most feel that rayon prices not only are on bottom but that an upturn will come at the first signs of lessening of producers' inventories and better demand.

The second surprise has been the drop of 1 cent in cotton bringing futures below the 8 cent mark, notwithstanding the Government loan program. Incidentally, the Government is reported now to have about 7,000,000 bales of cotton against which it has made loans to farmers.

With commodities in May displaying considerable weakness, affecting cotton, wool, rayon and silk, there has been a new feeling that it will take longer to work back to anything approaching normal in the business than we thought early in the year. Major adjustments are taking place that will take time to form a firm base for a sustained improvement; this does not mean, however, that we cannot have a seasonally better time this fall but many doubt this will mark a sharp turn in the long term outlook.

There is nothing to change previous ideas although softness has come in cotton and rayon, that the bottom of the commodity decline has been reached to all intents and purposes which means there may be some slight further easing but nothing drastic. It is the end of the decline in commodities and this in itself is good news for manufacturers if it ends inventory losses. This does not mean they should begin again to buy ahead because most everybody recommends cautious buying policies for the present.

The fall outlook for knit goods is for fair to good volume in hosiery but slowness in underwear. Prices of goods may decline slightly but in general these are close if not on bottom. There have been cuts in some rayon hosiery due to the yarn drop and in a few cotton hosiery items but in general last month's goods prices still hold. However, some look for additional softness in silk over the summer because of conditions abroad and smaller American consumption at present.

Worsted, cotton and rayon yarn prices are no doubt about as low as they are going but no change in trend is in sight and summer dullness may cause the market to continue easy but even so greater curtailment among spinners is an offsetting influence.

filled with union members. Wages, hours and working conditions are to remain the same and the agreement runs until July 1, 1939. Luther D. Adams, president of Branch No. 10, called attention to the fact that although the Oakbrook mill faces the same conditions of marketing and competition, as other mills in the Reading area, the company did not during the negotiations raise the question of a reduction of wages which remain the same for the life of the contract unless modified by arbitration. This contract was arrived at while the union was also conferring with the Keystone Hosiery Manufacturers, Inc., and the union indicated that it felt if this large mill could operate under the present wage scale, the 15 mills in the association could also.

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Branded Hosiery Prices Unchanged for Fall Season

Larger producers of full-fashioned hosiery have indicated that no important reductions are to be made in their fall lines. Julius Kayser & Co. will price their lines with no more than minor adjustments, according to Lawrence Mayer, vice-president, in charge of merchandising and advertising. He added that since wages went up last year, the branded houses can make only a few cents a dozen on $6.00 goods and consequently, were unlikely to price these goods any lower than at present. Gotham Silk Hosiery Co. has not intention at present of making reductions for fall, it was stated by Francis E. Moeckel, vice-president, who expressed a definite belief that the present $6.00 branded minimum will remain unchanged. Berkshire Knitting Mills will open its line on June 20 with only minor changes from spring quotations, according to Thomas O'Keefe, who declared he could not see how the market could go lower under present costs.

Because southern full-fashioned prices have lately weakened, following the accumulation of stock in anticipation of a union campaign, which has not materialized, some fear has been felt in the North that reductions by that section might tend to drag down quotations for the coming season. Manufacturers, however, regard that as a temporary condition, accentuated perhaps by the usual dullness of June, yet likely to prevail only until such time as inventories in the South are reduced. Curtailment is tending now to bring stocks into line, both in Penasylvania and North Carolina, and it is regarded as quite possible that prices will be even stronger on many lines of full-fashioned hosiery by the middle of July.

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New Light and Lively Hosiery Shades for Fall

Ten shades are presented in the 1938 fall hosiery card, issued early this month by the Textile Color Card Association to its members. Margaret Hayden Rorke, managing director of the association, said the dominating trend reflects hosiery tones that are light and lively with rich golden or burnish tans and glowing rosy beige. Strong fashion approval is forecast for warm shades with a glint of gold as Havana Tan, which is a smart compliment to the important Golden Havana tone in shoes and other accessories. French Toast, a gleaming burnt shade, further emphasizes this spirited golden tan note in hosiery that keys with many of the new custom colors for fall and winter. Another new color movement is expressed in Charmbeige, a rosy tone that blends closely with the fashionable vintage and plum shades in fall customs and shoes.

In addition to the three new shades described briefly above there are: Suntone, a light beige. This warm light shade enjoys wide acceptance for early fall wear with lively beiges of the toast and burnt wheat types. Tropic Glow, a sunlight copper. This color is adaptable for irridescent treatment. Vivacity, a rosy copper, this new tone has strong fashion approval as a harmonious accent to costumes in the favored brick, terra cotta or rosy rust range. Praline Beige, a natural beige, Tilebeige, a deep burnish beige. The latter, a warm lively shade, compliments browns in costumes, including the burnish brown and tobacco versions. Mistbeige, a medium grayish beige, for general wear with fall costumes. Cloudhaze, a light taupe. Because of its subdued character, this natural taupe shade can be worn with many costume colors, including black, navy and grayed blues, the wine tones, the purplish range.

◆

Hosiery Plants to Ask R.F.C. Aid

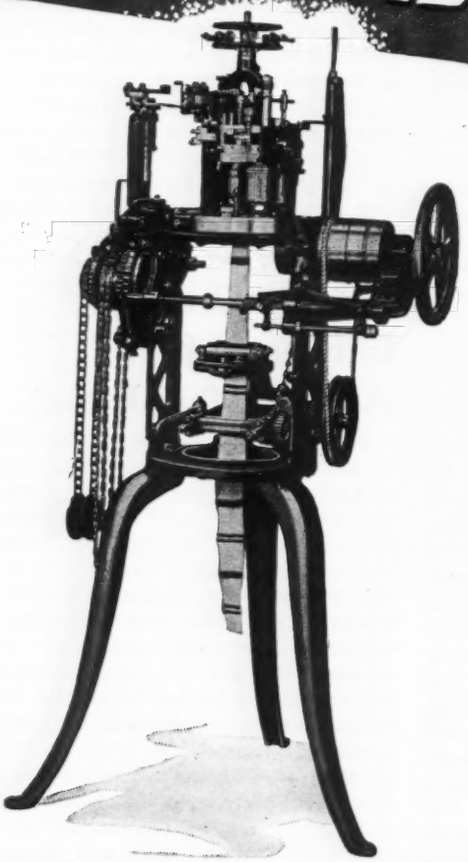
Philadelphia full-fashioned hosiery manufacturers and the hosiery union on June 7, held a meeting in Washington in connection with a joint plea that the Reconstruction Finance Corporation make loans to hosiery firms in Philadelphia to buy modern equipment and place these plants on a competitive basis with other parts of the country. Representing the full-fashioned hosiery manufacturers was Joseph Haines, Jr., secretary of the Full-Fashioned Hosiery Manufacturers of America, Inc. and a group of mill owners, while Branch No. 1, American Federation of Hosiery Workers was represented by William Leader, president, and M. Herbert Syme, union attorney. Edward F. McGrady, former Assistant Secretary of Labor, aided in arranging the meeting. "Unless they get new equipment," said Leader, "they are all doomed. The South has been in business now long enough to develop a measure of skill, and they are ahead of us in equipment. Given modern equipment, however, Philadelphia, with the finest supply of skilled labor to be found anywhere, can compete with any section of the country." At the Washington conference it was ascertained what methods should be pursued in making applications to the RFC and it is probable that formal application will be made by a number of firms in the near future.

◆

Hosiery Union Eliminated from Apex $1,000,000 Suit

Branch No. 1, American Federation of Hosiery Workers, on May 25, won elimination as a joint defendant in the $1,171,000 suit brought by Apex Hosiery Co. against the county commissioners and city and county officials for damages resulting from a sit-down strike in the Apex plant last spring. Following the recent ruling of the Court of Common Pleas No. 6, including the hosiery union as a joint defendant, its attorney petitioned the court to dismiss the writ on the grounds that the union as an unincorporated body could not be made a defendant in a lawsuit in Pennsylvania. The court declared there was no law in Pennsylvania to make an unincorporated association a joint defendant in an action at law. "There ought to be such a law", said Judge Bok, "but there is not." This ruling in the Court of Common Pleas No. 6 has no bearing on the suit filed by the Apex in the Philadelphia Federal District Court, against the union for $3,515,872 or thrice alleged damage occurred in the strike. The Federal Court suit is under the Sherman Act. Although the union itself thus escaped being a party to the suit, its officers as individuals were not so fortunate. Remaining as joint defendants are William Leader, president of the local, Joseph P. Burge, who was vice-president of the local during the Apex sitdown strike of last May and a number of other officers and individuals.

Brinton Ribbers



Rubber Lay-In
Picot Edge
3 & 4 Color Yarn Changes
Rack Welt
Mesh Designs
3 & 4 Feed Machines

•

Let the new, modern Brinton Ribbers carry the burden of your production problems. Modernize your old ribbers, by converting to the latest styles. . . . For dependable, economical production—rely on Brintons.

Full particulars on request

CIRCULAR BRINTON KNITTING MACHINES

3700 KENSINGTON AVENUE
Philadelphia, Pa.

NEW 2¼ lb. cones evenly dyed in single packages for Knitters

HIGHEST QUALITY KNITTING YARNS
COMBED PEELER THREAD YARNS
Bleached Yarns
Colored Yarns
SUPER CARDED YARNS
LOLA MILLS, INC. STANLEY, N.C.

KNITTING and WEAVING YARNS
12s To 45s SINGLE AND PLY
Package Dyeing
Cones or Tubes—also

PIONEERS IN BEAM DYEING
BLEACHED BOTTOM YARNS A SPECIALTY
LOLA MILLS, Inc.
STANLEY, N. C.

4 VALUABLE PAMPHLETS

Up-to-Date Practical and Usable Knitting Data

The four pamphlets listed below provide a source of valuable information on knitting topics that will be found usable in every-day mill operation. They were reproduced from articles that have appeared in recent issues of COTTON, which created so much interest and favorable comment that it was decided to reproduce them in pamphlet form. They are available, at the prices indicated, as long as the supply lasts. In ordering, simply designate by alphabetical letter the pamphlets desired, and enclose cash with your order.

R- "The Care and Operation of the Banner Split-Foot Machine", in five articles. If you have these machines you will want these discussions. **All five for 50 cents.**

S- "Straightening Needles for Full-Fashioned Machines" by B. D. Gaddy. A 6-page article with illustrations showing how it is done. **Price—20 cents.**

T- "Eliminating 'Washboard' Effects in Manufacturing Ringless Hosiery", by Henry W. Hoffman. A 4-page discussion for 20 **cents.**

U- "Sizing Hosiery from Full-Fashioned Machines" by B. D. Gaddy. A description of a method found to be accurate and practical. **Price—20 cents.**

Address Editorial Department

COTTON
Serving the Textile Industries
GRANT BUILDING, ATLANTA, GA.

Old Hosiery Firm Retires

Another casualty in the long list of Philadelphia hosiery mills occurred early this month when it was announced that the old established hosiery concern of E. Sutro & Sons Co., with a plant in Philadelphia and another at York, was planning to retire from business "because of present conditions." Paul E. Sutro, president, said its two plants would be closed, one in Philadelphia employing about 400 to be shut by August. The one at York laid off 150 of its 428 employees June 3 and plans to close by the end of June. The Sutro firm is one of the oldest in that section and originally had only one mill but within recent years, it started a plant upstate, where it has been doing most of its knitting with the finishing being mainly at Philadelphia.

◆

Meinig Hosiery Workers Agree to Take Wage Cut to Aid Refinancing

Seven hundred employees of the million-dollar Meinig Hosiery Co. in Reading, are willing to give up 15 per cent of their wages so the concern might get out of financial difficulties by re-organizing its affairs under the Federal Bankruptcy laws. This was signified June 3 in a petition filed before Federal District Judge Oliver B. Dickinson by the People's Finance Corp. of Reading, requesting a 30-day extension in which to present a plan of re-organization. The employees' offer, said the petition, would amount to approximately $150,000 a year and the money would be set aside for the purchase of stock in a new corporation. Part of it would be used for operating expenses and payment of taxes for the company, which also operates a mill at Corinth, Miss. In its petition filed last March, the company showed it was insolvent with assets of $919,005 and liabilities of $1,385,499. Judge Dickinson granted the extension covering a 30-day period.

◆

Slight Gain Noted in Hosiery Imports

Further gain in hosiery imports in April over previous months this year is shown in a report of the National Association of Hosiery Manufacturers, giving the total of all kinds at 61,932 dozens compared with 55,421 dozens in March and 40,867 dozens in February. The gain was due to an increase in volume from Japan. While sizable gains in this country's imports occurred the amount is still well under the monthly ratio under the quota agreement of 1,500,000 annually. The gain nevertheless probably indicates a slackening of the public feeling which a short time ago boycotted hosiery bearing the stamp "Made in Japan." The association reports that imports of cotton hosiery from other countries than Japan rose from 8,772 dozens in February to 14,867 dozens in April.

◆

Retail Hosiery Demand Continues Active

Department store hosiery sections continued in April to be one of the few exceptions to the general decline in volume by not only recording substantial gains over April a year ago and continuing to run far ahead of general department store business, but also by more than compensating for the drop in hosiery sales in March, caused principally by the later date of Easter. This was indicated by reports covering sales in the Federal Reserve districts of New York, Cleveland and Boston. April sales of women's and children's hosiery in the New York area were 13 per cent greater than the volume of last year; in the Cleveland district they were 15.6 per cent larger; in the city of Boston, 20.9 per cent higher. The 13 per cent gain in the New York area compared with a loss of 9.6 per cent in March. Stocks held at the end of April were well below those of a year previous, hosiery stocks in department stores in the New York district being 5.7 per cent lower and 18.7 per cent lower in Cleveland with a 12.7 drop in Boston.

◆

Drastic Cut in Rayon Yarns Affecting Hosiery Prices

The last reductions made in the price of rayon yarns, bringing this fiber down to a level as low as any in the history of the business in the United States, have brought about reductions in certain types of hosiery, especially women's seamless, where prices now in some instances are 15 cents a dozen under that prevailing at the beginning of the year. Several manufacturers have named prices that permit lower retail selling prices on rayon seamless goods, and this in turn has had a sympathetic effect, causing an easy trend in women's silk seamless hosiery. Mercerizers of yarns assert that they are not concerned at present by the cut in rayon, most of them feeling that the trades using the largest amounts of mercerized will continue to do so as a matter of consumer preference, this being evident, they say, in such lines as anklets.

◆

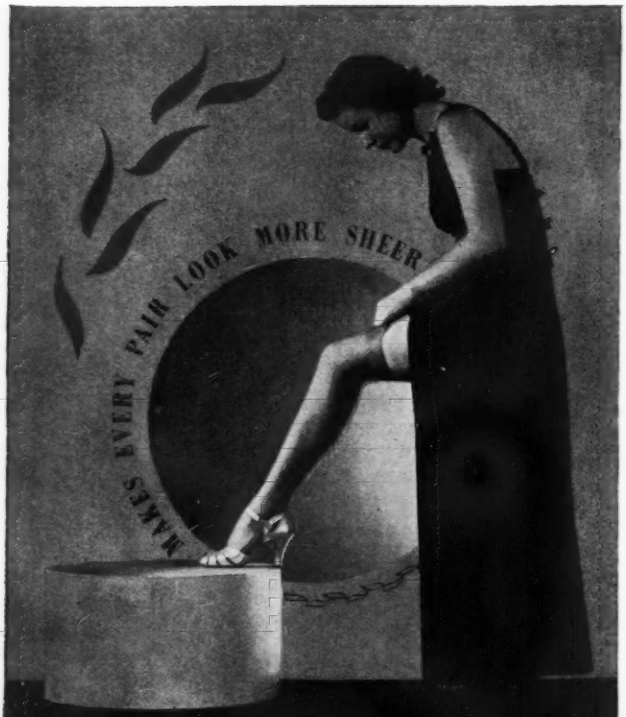
Citizen Committee Buys Allen-A Co. Plant

A citizen's committee, financed by the Reconstruction Finance Corporation, has purchased the plant and equipment of the Allen-A Co., Kenosha, Wisc., for $300,000 in cash and a second mortgage for an additional $200,000. The money will be loaned by the RFC to a new corporation to be formed by the committee. Assurance of the Federal funds was given to a delegation of the Kenosha Local of the American Federation of Hosiery Workers which went to Washington. It is understood the RFC has offered $400,000, $300,000 to go into the purchase price and $100,000 to operations, taking a first mortgage on the property as security. The citizens' committee announced it would endeavor to obtain $50,000 in addition to secured pledges already obtained for $100,000 from Kenosha's citizens. Some 800 persons laid off when Allen-A moved from the city are expected to return to work.

◆

Dressmaker Beachwear Curtails Knitted Worsted Suits

The trend of the swimsuit business at retail indicates that the dressmaker type will again predominate this year at the expense of the wool knit type. The knitted outerwear trade is encountering real resistance to its current offerings in beach wear, except for cheap numbers in both wool and cotton, featuring by the chains, initial consumer buying has been concentrated in the woven numbers. One large retailer reports that the regulation knitted suit is accounting for only 27 per cent of sales compared with 35 per cent at this time last year. Lastex and silk and other types of woven materials have the edge. Some difficulty is also being faced in the men's and boys' swimsuit division, where gabardine trunks are making sharp inroads into knit sales. Owing to the loss of business in the domestic market, some of the manufacturers of knitted suits and trunks are turning toward the exporters in hopes of relieving their situation. Finding that Jantzen appears to be holding its own in foreign markets, despite the depression, these producers have been studying possibilities in South America and South Africa.



MORE THAN a "film of protection", *DuraBond* Hosiery Finishes soften the texture, bond the threads smoothly together and even the loops . . . make hosiery look and feel more sheer . . . give the customer the luxury in appearance she wants, *with* the extra wear, the resistance to pulls and runs and spots she demands.

Naturally, *DuraBond* Finishes are widely used—to make more sales, more rapidly.

DuraBond Reg. U.S.A. and Canada

HOSIERY FINISHES

SCHOLLER BROS., INC.

MANUFACTURERS OF TEXTILE SOAPS, SOFTENERS, OILS, FINISHES
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How to Avert A Buyers' STRIKE

Business is shaking in its boots, for as prices soar there is ever a chance of buyers' strikes.

If you are forced to raise prices you can do much to combat price resistance by making your packaging more attractive and to more properly convey the idea of quality. A well known line of hosiery forestalled customer objection to higher prices by materially beautifying their packaging.

So if you must raise prices or if you feel that your package itself should produce more sales, we can show you how you may make your packaging more attractive without necessarily adding much to the cost.

In fact, through our "CO-ORDINATED PACKAGING", whereby we *match* your various packages, we can often save you considerable money through economies in artwork, plates and printing. *Designs for boxes and displays submitted without cost or obligation.*

OLD DOMINION BOX CO., Inc.
LYNCHBURG, VIRGINIA

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Old Dominion Paper Boxes

AVONDALE MILLS
of
ALABAMA

OFFER THE ADVANTAGES OF LARGE FACILITIES — QUICK SERVICE

ANY TWIST, PLY or PUT-UP IN ALL NUMBERS FROM 3's TO 40's. CAN BE READILY SUPPLIED IN CARDED OR DOUBLE CARDED

YARNS
FOR KNITTING, WEAVING OR INSULATING

SELLING AGENTS

WATERMAN, CURRIER & CO., INC.
BOSTON CHICAGO CHARLOTTE NEW YORK PHILADELPHIA AMSTERDAM READING CHATTANOOGA

Many manufacturers also that formerly made only knitted garments are now going into the making of dressmaker suits as a side line.

◆

Utica Knitting Signs New Union Contract

The Utica Knitting Co. of Utica, N. Y., late last month reached a new agreement with the Textile Workers' Organizing Committee. The new agreement provides for a 40-hour week, a $14.00 weekly minimum wage, time and a half for overtime and recognition of the TWOC as sole bargaining agent. It also provides in addition that the 10 per cent wage cut conceded by the union in February will continue. This cut was granted when the mill started up at the time on a large government contract for wool underwear. The new contract provides that the wage scale set up in this February supplementary agreement shall be maintained subject to negotiations on restoration of the cut when business conditions warrant. The new agreement covers a large number of workers here as well as in other nearby centers.

◆

Phoenix Co. Buys New Knitting Machines

The Phoenix Hosiery Co. of Milwaukee, Wis., has purchased 14 new knitting machines at an estimated cost of $150,000 to replace outmoded equipment in that plant. Officials of the company say that the new machines will make possible a lower unit cost of production and at the same time increase earning capacity for the operator.

◆

Hosiery Union Board Meets in Milwaukee

An important meeting of the executive board of the American Federation of Hosiery Workers was held June 13 in Milwaukee when among other matters the question of the stand the union shall take in its wage negotiations with northern manufacturers of full-fashioned hosiery was discussed. The only announcement made was that the union had voted down a resolution that it should ask for a 10 per cent wage increase and a reduction of five hours per work-week. This indicates that both the manufacturers and the union are doing considerable jockeying for position in the negotiations. While there may come some cuts in wages of extra operations no one expects the union to agree to any general cut. In fact, it is not believed that the manufacturers in Philadelphia are going to ask for any general cut but this has not been definitely decided. The Full-Fashioned Hosiery Manufacturers of America, Inc., at a meeting in Philadelphia during June did not take definite action on this but decided to hold another meeting toward the last of June when there still will be time if they want to give the union 60 days' notice that they do not want to renew the contract.

◆

Hosiery Shipments Declined in April

Reporting a drop of 12.3 per cent in hosiery shipments for April, the National Association of Hosiery Manufacturers points out that this was larger than expected. Total shipments were 10,593,000 dozens while for March it had reported 12,076,000 dozens. Women's full-fashioned declined less than the average but men's half-hose did not do well, shipments registering a 10 per cent drop at a time when usually there is a gain in this branch.

◆

Larger Consumption of Italian Silk

Increased use of Italian raw silk by hosiery manufacturers has been an interesting development in recent months. A number of mills have found that it works out satisfactorily in the welts and feet of full-fashioned stockings and that it offers an attractive saving in price. Italian silk sells at a price discount from yellow 20-22 Japan silk and in addition, there is a saving in the throwing due to the heavier size. Formerly most hosiery mills hesitated to use yellow Italians, both because of the color and because imports only came in spasmodically, leading to some uncertainty as to supplies. As to the color, they have found that it dyes up satisfactorily with no complaints from the consumer. As to regularity of supplies, the silk has been coming in steadily in recent months and in increasing quantities. Imports during January were 536 bales, which by April had expanded into 3,277 bales. It was announced that plans were under way to double the production for export for the coming 1938-39 season and to increase it again for the following season.

◆

North Carolina Sees Rapid Industrial Expansion

Nearing the end of a year of its first advertising and promotion campaign, the state of North Carolina has shown a substantial business and industrial expansion. A total of 46 new industries located in the state during the first four months of 1938. The rapid growth of new industries, chiefly textiles, was accompanied by a corresponding increase in industrial plant additions, 27 firms listing contracts awarded for additional manufacturing and processing space. 15 full-fashioned hosiery mills located in North Carolina in a single month this past spring—during 1937 only 30 such mills located in the state. North Carolina, which is in the midst of an advertising campaign directed at tourist travel and attracting new industries and agricultural settlers, is bidding for the attention of the industries upon a conservative and long look to the future.

◆

Calco Adds to Sales Staff

The Calco Chemical Company, Inc., Bound Brook, N. J., has announced that J. A. Kilcommons and R. C. Morrison, formerly with John Campbell & Co., have joined the sales staff at Providence, R. I. At the Charlotte, N. C., office, M. A. Stough and M. L. Kirby, both formerly with John Campbell & Co., have joined the sales department.

◆

Murphy to Represent Standard-Coosa-Thatcher Company in Carolinas and Virginia

Standard-Coosa-Thatcher Company, Philadelphia, Pa., with plants in Tennessee and Alabama, have announced the appointment of Nettleton P. Murphy, Guilford Bldg., Greensboro, N. C., as sales representative in North Carolina, South Carolina and Virginia. Mr. Murphy will continue also to represent Oscar Heineman Corporation, as in the past.

◆

Open House by Calco

Calco Chemical Co., Inc., Bound Brook, N. J., a division of American Cyanamid Company, conducted recently a two-day "open house", as a part of the 250th anniversary celebration of the founding of Somerset County, where the plant is located. The plant was open to the public, and the attendance ran well over 2,000, including local business and professional men, high school groups, etc. The guests were shown through the laboratories, accounting department, plant, etc., and attractive exhibits showed different uses of the company's products.

An interesting exhibit of the occasion was one showing the location of the company's customers in this country, and another showed the foreign customers. The open house afforded the employees of the company opportunity to show their families through the plant.

TRENDS—THE YARN MARKETS

All Types of Yarns Decline in Price. Demand Dull Except for Fair Interest from Hosiery Trade. Rayon Yarns as Low as They Have Sold in United States. Better Resistance Among Cotton Spinners.

Philadelphia, June 16, 1938.

CONSUMPTION OF SILK in the United States so far this year has been very little under that for the same period last year, this branch of the knit goods industry making the best volume showing of any and about the best in the entire industry but even so this has been unable to prevent a further decline in raw silk which is about 12 cents lower than last month. In cotton yarns, the unexpected drop in cotton of about ½ cents has brought about a similar decline in yarns and spinners have reached such a no-profit basis for selling that curtailment among them is greater than for a long period. Late in May rayon yarns were unexpectedly reduced bringing the man-made fiber down to a basis that has only been duplicated once in the history of the industry in this country, back in 1933. Worsted yarns are easy but knitting counts are holding fairly well but only nominally; large inquiries, if they came, would bring lower levels. Easy yarn prices as usual are causing buyers to hold off.

Cotton Yarns

Demand has been very quiet and the past month has been marked by a rather sharp decline in the raw material market and this has been reflected in lower prices for cotton yarns. The decline has averaged ½ a cent in both the raw and yarn markets so that spinners' margins have been maintained. Selling prices of yarns had previously reached a very unprofitable level for spinners so that it is probable that yarn prices will continue at least as steady as the raw market. This condition is evident from the large number of spinners that report that it is now more profitable for them to refuse current low-price offers as it would be to operate and in view of this, additional spinners are shutting down at least for a substantial period this summer. While both weaving and knitting yarns have been very dull, there has been relatively more interest from knitters and there are indications that current prices are beginning to attract bargain hunters who are placing medium-size contracts for delivery over the next two or three months. In instances spinners say they could sell a substantial amount of the better-known yarns if they would accept the lowest prices being reported in the market but such prices are being accepted mainly by less well-known spinners.

One of the main interests in the market over the past month has been for single combed to go into socks and undershirts for the army or for the CCC. The local depots of the army and also the marine corps have been awarded contracts in these items and the successful bidders have been obliged to buy substantial amounts of combed knitting yarns. Prices involved in this type business have been very low because manufacturers named low prices to get the business and while the better known spinners have been asking 29 cents basis 30s single, sales have been made both for private and governmental use considerably under this price, it being reported that 30s single has recently sold as low as 27½ cents, which would be approximately a cent under the selling price of a month ago. On this basis, sales of 30s single carded have been made at 24½ cents for a better-than-average quality, which a month ago was held at 26 cents.

Mercerized yarns have proved an exception to the general rule with quotations remaining unchanged over the month but actually, there has been fair amount of price-cutting in these qualities where there was an opportunity to book a sizable order. Processors of the better types quote 63 cents for 60s two-ply ungassed. Demand has been very quiet but the shipments on old contracts have been at the best level of the year.

Silk

Silk has been weak over the month because of a seasonal letdown in demand from the hosiery industry which uses approximately 80 per cent of the silk in this country and also because of conditions in Japan resulting from her large military expenses. Hosiery manufacturers, while operating at a fairly good rate in the case of branded manufacturers, are in most cases, experiencing a between-season lull, which will continue until the fall business develops. This situation is reflected in the silk statistics released the first of the month, showing that mill-takings were several thousand bales under previous estimates, being only 28,687 bales as against an expected 30,000 to 31,000 bales. This figure compares with 33,381 bales taken by the mills during April and 25,278 bales during May 1937.

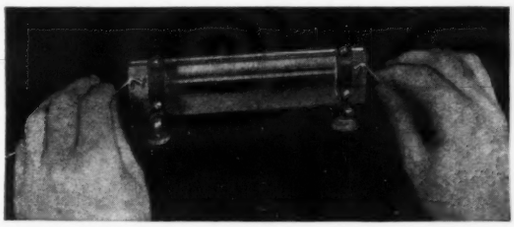
Imports were small in May, resulting in a decrease in warehouse stocks in this country as of June 1 to 37,016 bales. In comparison with current takings, however, stocks appear ample and in addition the reported quantity of silk in transit, 34,800 bales, would point to imports during June to around 35,000 bales of Japan silk alone. Present indications are that consumption during June will run around 25,000 to 27,000 bales and if imports are 10,000 bales above mill takings during June, it appears that stocks at the end of the present month will total about 46,000 to 47,000 bales. This would be the largest warehouse stock at the end of a season in many years. In view of this manufacturers are placing new business cautiously and not anticipating their probable fall needs. American manufacturers feel that it is inadvisable to operate too far ahead in silk in view of the position of the yen. As long as the war in China goes on, the yen will undoubtedly be supported, but they are beginning to wonder what will happen at its conclusion when Japan strives to regain export markets. Recently, Japan's export business has been declining as her industries have been devoting most attention to army requirements.

Rayon Yarns

Rayon weaving yarn prices dropped to the lowest level in the history of the American rayon industry May 20, when the rayon division of the Dupont Company reduced viscose quotations two cents to eight cents per pound. The standard 150 denier weaving yarn was reduced from 54 cents to 49 cents, the former price having become effective January 21, 1938. The previous low for this denier was 50 cents, becoming effective April 3, 1933, but this was followed by an advance on April 27 of the same year. Announcement of the new prices for weaving yarns followed the reduction in 150 denier oiled pigment cones for knitters from 52 cents to 47 cents. The company made no change in this size in its May 20 price list but it reduced other knitting deniers from 4 cents to 13 cents, the sharpest cut being in the quotations for 50 denier which was reduced to 80 cents. A few days later, it was announced that the Celanese Corporation of America, largest and oldest producer of acetate yarns, had reduced its prices to be effective as of May 20. The acetate yarn, however, was reduced only 2 cents. The reductions have not brought about as yet any substantial increase in demand, which remains poor.

Worsted Yarns

While worsted weaving yarns have been easy over the past month in sympathy with the raw material market, knitting yarns at least nominally, have remained unchanged with 2-30s, 50s, being held at 90 cents, the same as a month ago. Demand has been so quiet that the price level has not been tested and it is probable that this figure could be bettered by at least 2½ cents. Manufacturers claim spinners should reduce prices further in view of the weakness in the wool and top markets but spinners assert that margins are extremely small, particularly in view of their low operating schedules at present, which increases their overhead. Outerwear manufacturers have been unable to book any worthwhile fall business and indications are the season will be late and active only in a few novelty numbers.



SCOTT TESTERS

What it is:—

A simple stand holding an unusual form of magnifying glass.

What it does:—

Allows the observer while sitting upright to see with both eyes 5 inches of yarn at 8 magnifications. This unusual form of lens magnifies the diameter direction only, which accentuates irregularities of twist, diameter and general appearance.

How it is used:—

The specimen of yarn is placed in the guides beneath the glass. The operator draws the yarn along and readily notes the uniformity or irregularity of the yarn.

$10.00 f.o.b., Providence, R.I.

HENRY L. SCOTT CO.

Providence, Rhode Island

BOBBIN CLEANING

AS MODERN AS TOMORROW

THE NEW TERRELL TYPE "L"

AIR CLEANING MACHINE

for

SILK, RAYON, FINE COTTON

combines

Maximum Efficiency

with

no possibility of damage to finish

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Your inquiries invited

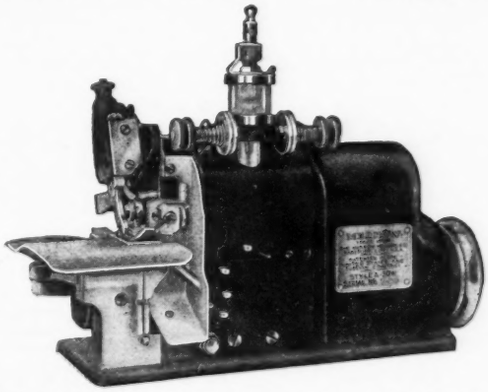
The Terrell Machine Co., Inc.

CHARLOTTE, NORTH CAROLINA

1838 TRADE MARK **MERROW** **1938**

For Overseaming and Overedging with maximum efficiency at high speed and low operating cost modernize with the new

MERROW CLASS A MACHINES



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The finest Bemberg sheers are made with

HYDROXCENE

for BOTH WARP AND FILLING . . .

¶ Bemberg sheers, in demand now, made with Hydroxcene, have a nice hand. Hydroxcene is a one-piece product, easy to apply, coats the yarn so it holds the twist, gives uniform weaving quality and is readily removed by the dyer. ¶ The best Bemberg sheers are made with Hydroxcene treated yarns for warp and filling.

Send for economical working formulas.

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"The Weavers' Friend"

Always Uniform

- Penetrates More Thoroughly
- Boils Thin
- Carries Weight Into the Fabric
- Dependable

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The **Keever Starch Company**

Columbus, Ohio

Improve Your Quality

You cannot get uniform yarn from worn, uneven diameter flutes.

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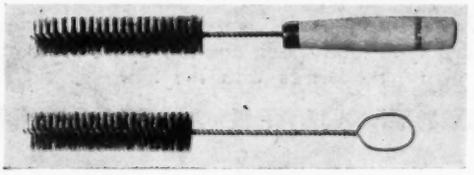

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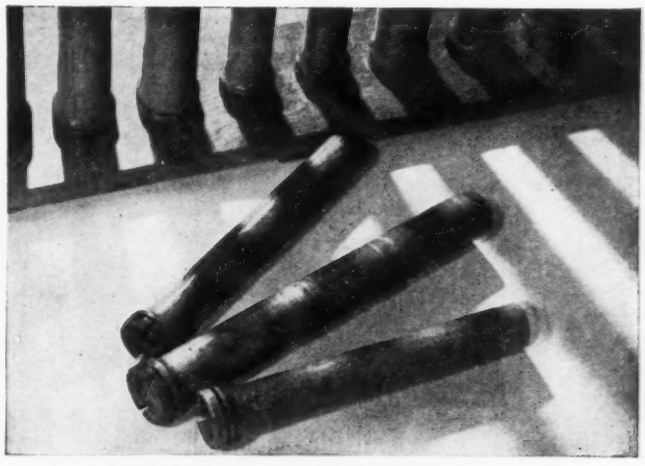

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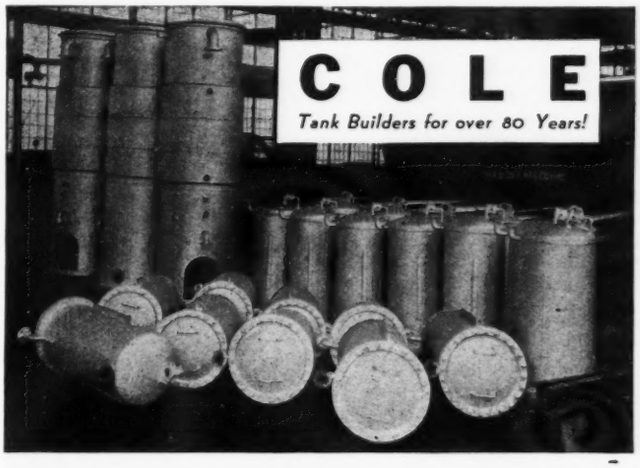

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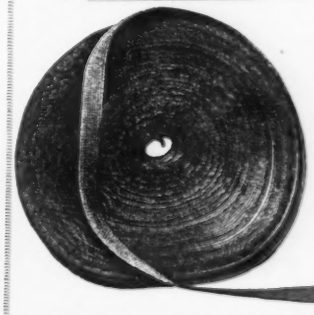

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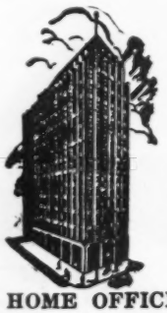

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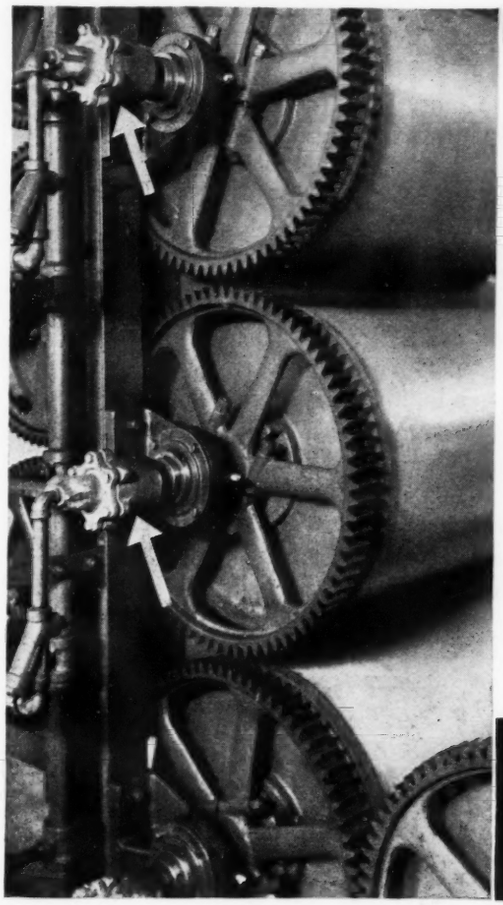

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1882
to
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Over Half
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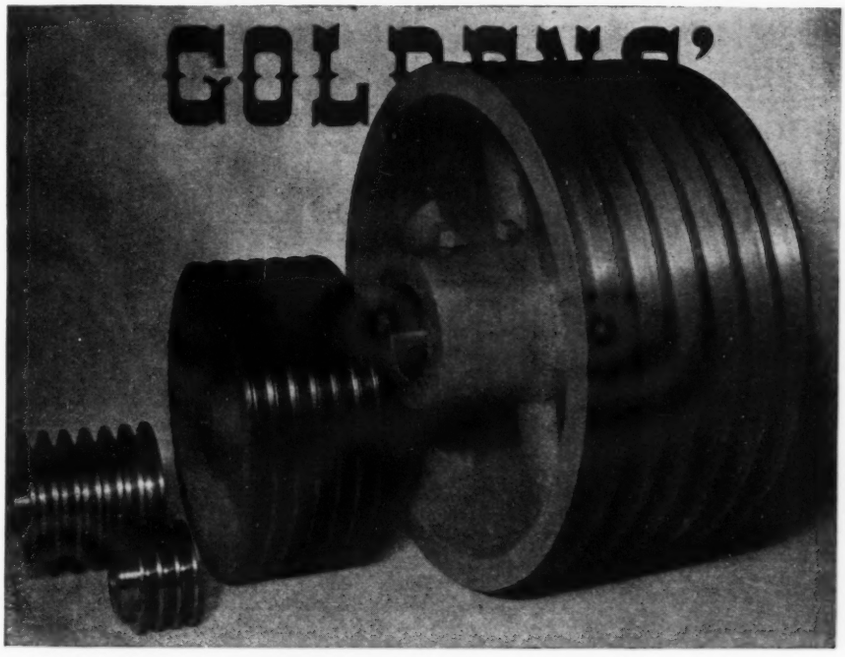

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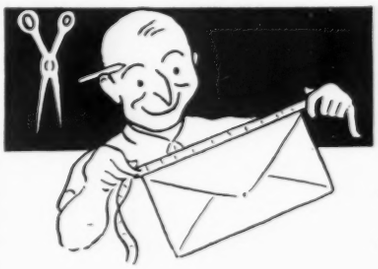

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Everlastic
ROGER W. CUTLER

Cutler Spinning and Twisting Tape

Plastacele Comber Detaching Rolls

Evercele temple rolls and Everwear

Everlastic Spinning and Card-room Rolls

Everlastic Take-up Roll Covering

Everwear Spinning and Card-room Rolls

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